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# **AQUARIUS PLATINUM LIMITED**

ARBN 087 577 893

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NOTICE OF GENERAL MEETING

and

**EXPLANATORY MEMORANDUM** 

and

INDEPENDENT EXPERT'S REPORT

PROCESSED

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Date of Meeting:

29<sup>th</sup> April 2002

Time of Meeting:

9.00 am

Place of Meeting:

Clarendon House, 2 Church Street, Hamilton, Bermuda

This Notice of General Meeting, Explanatory Memorandum and Independent Expert's Report should be read in their entirety. If shareholders are in doubt as to how they should vote, they should seek advice from their accountant, solicitor or other professional adviser prior to voting.

### **AQUARIUS PLATINUM LIMITED**

#### ARBN 087 577 893

#### NOTICE OF GENERAL MEETING

Notice is hereby given that a general meeting of shareholders of Aquarius Platinum Limited ("Aquarius" or "Company") will be held at Clarendon House, 2 Church Street, Hamilton, HMCX, Bermuda on 29<sup>th</sup> April 2002 at 9.00 am.

The Explanatory Memorandum which accompanies and forms part of this Notice of General Meeting describes the various matters to be considered and contains a glossary of defined terms for terms that are not defined in full in this Notice of General Meeting.

### **AGENDA**

# Restructure of the Aquarius Group involving the acquisition of Kroondal Shares from Impala and sale of the Kroondal business to AQPSA

To consider and, if thought fit, to pass, with or without amendment, the following as an ordinary resolution:

"That for the purpose of Listing Rule 10.1 and for all other purposes, the members of the Company hereby approve and authorise the Directors of the Company to effect a restructure of the Aquarius Group, involving, amongst other things:

- (a) the acquisition of 2,591,700 shares in the capital of Kroondal Platinum Mines Limited ("Kroondal") from Impala Platinum Holding Limited ("Impala"); and
- (b) the sale by Kroondal of its entire business to Aquarius Platinum (South Africa)
  Pty Ltd ("AQPSA"), of which Aquarius holds approximately 75% of the issued shares and Impala holds approximately 25% of the issued shares,

on the terms and conditions contained in the Rutionalisation and Sale of Business Agreement between the Company, Kroondal, AQPSA and Aquarius Platinum (Australia) Limited and the Sale of Shares and Claims Agreement between Investec Bank Limited, the Company, AQPSA and Impala, summaries of which are set out in the Explanatory Memorandum."

The Company will disregard any votes cast on this resolution by a party to the transaction and any associate of those persons. However, the Company need not disregard a vote if it is cast by a person as a proxy for a person who is entitled to vote, in accordance with the directions on the proxy form, or it is cast by a person chairing the meeting as a proxy for a person who is entitled to vote, in accordance with a direction on the proxy form to vote as the proxy decides.

### BY ORDER OF THE BOARD

Willi Boehm Company Secretary

DATED: 5th April 2002

### PROXY AND VOTING ENTITLEMENT INSTRUCTIONS

#### PROXY INSTRUCTIONS

Shareholders are entitled to appoint up to two individuals to act as proxies to attend and vote on their behalf Where more than one proxy is appointed each proxy may be appointed to represent a specific proportion of the shareholder's voting rights. If the appointment does not specify the proportion or number of votes each proxy may exercise, each proxy may exercise half of the votes.

The proxy form (and the power of attorney or other authority, if any, under which the proxy form is signed) or a copy or facsimile which appears on its face to be an authentic copy of the proxy form (and the power of attorney or other authority) must be deposited at or sent by facsimile transmission to the Company's Bermud: share registry, Codan Services Limited, Clarendon House, 2 Church Street, Hamilton HM CX, Bermuda, the Company's UK share registry, Computershare Services PLC, The Pavilions, Bridgewater Road, Bedminster Down, Bristol BS99 7NH, England – facsimile (44)(870) 703 6101 or the Company's Australian share registry, Computershare Registry Services Pty Ltd, Level 2, Reserve Bank Building, 45 St George's Terrace, Perth, Western Australia – facsimile (618) 9323 2033, not less than 48 hours before the time for holding the General Meeting, or adjourned meeting as the case may be, at which the individual named in the proxy form propose to vote.

The proxy form must be signed by the shareholder or his/her attorney duly authorised in writing or, if the shareholder is a corporation, in a manner permitted by Bermudan law.

The proxy may, but need not, be a shareholder of the Company.

In the case of shares jointly held by two or more persons, all joint holders must sign the proxy form.

A proxy form is attached to this Notice.

### **VOTING ENTITLEMENT**

For the purposes of determining voting entitlements at the General Meeting, shares will be taken to be held by the persons who are registered as holding the shares at 5.00 pm on Wednesday, 24<sup>th</sup> April 2002. Accordingly, transactions registered after that time will be disregarded in determining entitlements to attend and vote at the General Meeting.

# AQUARIUS PLATINUM LIMITED

ARBN 087 577 893

## **PROXY FORM**

Computershare Registry Services Pty Ltd
Level 2 OR
Reserve Bank Building
45 St George's Terrace
PERTH WA 6000
AUSTRALIA

Codan Services Clarendon House 2 Church Street Hamilton HM CX BERMUDA Computershare Services PLC
OR The Pavilions
Bridgewater Road
Bedminster Down
Bristol BS99 7NH
ENGLAND

I/We			<del></del>
of			<u>.</u>
being a shareholder/(s) of Aquarius Platinum Limited ("Company") and entitled t	0		
shares in the Company			
hereby appoint			
of			
or failing him/her			·
of			
or failing him/her the Chairman as my/our proxy to vote for me/us and on my/our Company to be held at Clarendon House, 2 Church Street, Hamilton, Bermuda or adjournment thereof in respect of of my/our shares ALL of my/our shares in the Company.	a 29 <sup>th</sup> April :	2002 at 9.00 am,	and at any
If two proxies are appointed, the proportion of voting rights this proxy is authorise proxy form will be supplied by the Company on request.)	ed to exercis	e is [ ]%. (A	n additional
In relation to undirected proxies, the Chairman intends to vote in favour of each	Resolution	i.	
If you do not wish to direct your proxy how to vote, please place a mark in the	box.		
By marking this box, you acknowledge that the Chairman may exercise your proutcome of a resolution and votes cast by him other than as proxy holder will be	roxy even if e disregardo	he has an intered ed because of the	est in the at interest.
If you wish to indicate how your proxy is to vote, please tick the appropriate place resolution, the proxy may abstain or vote at his or her discretion.	s below. If	no indication is	given on a
I/we direct my/our proxy to vote as indicated below:			
RESOLUTION	For	AGAINST	ABSTAIL
Restructure of the Aquarius Group involving the acquisition of Kroondal Shares and sale of Kroondal's business			

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As witness my/our hand/s this	day	y <b>o</b> f 200	2
If a natural person: SIGNED by	1		
in the presence of:			
Witness			
Name (Printed)			
If a company:			
EXECUTED by )			
in accordance with its ) constitution )			
Director		Director/Secretary	
Name (Printed)		Name (Printed)	
If by power of attorney:			
SIGNED for and on behalf of by under a Power of dated and who declares that received any revocation of such Po in the presence of:	he/she	has not )	
Signature of Attorney		Signature of Witness	

### **AQUARIUS PLATINUM LIMITED**

ARBN 087 577 893

#### EXPLANATORY MEMORANDUM

This Explanatory Memorandum has been prepared for the information of shareholders in Aquarius Platinum Limited ("Aquarius" or "Company") in connection with the business to be conducted at the general meeting of shareholders to be held at Clarendon House, 2 Church Street, Hamilton, Bermuda on 29<sup>th</sup> April 2002 at 9.00 am.

This Explanatory Memorandum should be read in conjunction with the accompanying Notice of General Meeting and Independent Expert's Report.

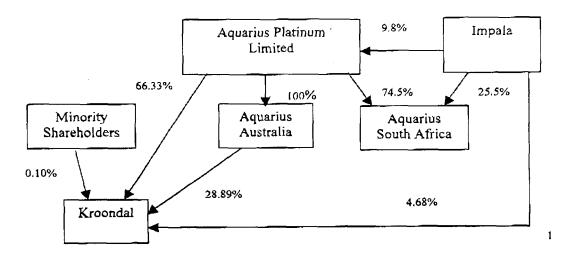
# 1. Restructure of the Aquarius Group involving the acquisition of Kroondal Shares from Impala and sale of the Business of Aquarius Platinum (South Africa) Pty Ltd

### 1.1 Current Aquarius Group Structure

Aquarius is the holding company of:

- (a) Aquarius Platinum (Australia) Limited ("Aquarius Australia"), a company incorporated in Australia and a wholly owned subsidiary of Aquarius;
- (b) Kroondal Platinum Mines Limited ("Kroondal"), a company incorporated in South Africa and a controlled entity of Aquarius. The Aquarius Group has a 95.22% interes in Kroondal, held directly and indirectly through its wholly owned subsidiary Aquarit Australia; and
- (c) Aquarius Platinum (South Africa) Pty Ltd ("Aquarius South Africa" or "AQPSA") i a company incorporated in South Africa and a subsidiary of Aquarius. Aquarius holds 74.5% of AQPSA. Impala Platinum Holdings Limited ("Impala") holds 25.5% of AQPSA.

The current structure of the Aquarius Group is set out below:



### 1.2 Kroondal

Kroondal was a wholly owned subsidiary of Aquarius Australia prior to Kroondal's initial public offering and listing on the JSE in 1998. Following the listing, Aquarius Australia's interest in Kroondal was reduced to 44.5%. In 2001 the Aquarius Group increased its interest in Kroondal pursuant to a cash takeover offer.

The Aquarius Group currently holds 52,767,022 Kroondal Shares, representing approximately 95.22% of the issued share capital of Kroondal, held directly and indirectly through its wholly owned subsidiary Aquarius Australia. Impala holds 2,591,700 Kroondal Shares representing approximately 4.68% of the issued share capital of Kroondal, and the remaining 0.10% of the issued shares in Kroondal are held by other minority shareholders. Kroondal was delisted on 10 August 2001.

Kroondal operates the Kroondal Platinum Mine situated near Rustenburg in an area known as the Bushveld Igneous Complex. The Kroondal Platinum Mine is the only operational mine within the Aquarius Group.

### 1.3 Aquarius South Africa

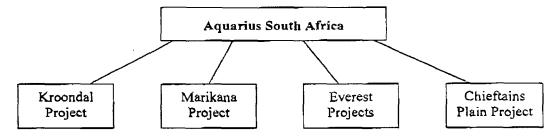
Aquarius South Africa holds and is currently developing the Marikana project situated at the western limb of the Bushveld Igneous Complex, and Everest South, a portion of Everest North and Chieftains Plain project situated at the eastern limb of the Bushveld Igneous Complex.

The Marikana project has proceeded through feasibility study and a subsequent mining optimisation study. Construction of the mine commenced in late 2001. Production is projected t commence in early 2003.

The Everest South project has had a resource estimate and an infrastructure study completed. The results from the study have highlighted the main issues that require focus in the feasibility study. The feasibility study has been commenced and is planned to involve further drilling of the resource and the establishment of a decline shaft into the orebody to extract a bulk sample for testing and to assess the structure of the orebody from a mining perspective.

AQPSA has issued 1,000 shares, of which Aquarius holds 745 shares (representing 74.5% of the issued capital in AQPSA) and Impala holds 255 shares (representing 25.5% of the issued capital in AQPSA. As part of the Restructure, Aquarius will purchase 5 shares from Impala, so that, upon completion of the Restructure, Aquarius holds 75% of the issued capital of AQPSA and Impala holds 25% of the issued capital of AQPSA.

Upon completion of the Restructure, all of the Aquarius Group's platinum projects will be owned by AQPSA.



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### 1.4 Impala

Impala is a South African based platinum mining company and the second largest producer of platinum in the world. Impala has a 9.8% interest in Aquarius, a 4.68% interest in Kroondal and a 25.5% interest in AQPSA.

Impala has provided, and continues to provide, financial support to the Aquarius Group. On 22 December 2000, Impala provided a guarantee to Investec for a loan by Investec to AQPSA or R504 million, which gave Impala a right to acquire a further equity interest in Kroondal if there was a default in terms of the loan agreement. The conversion right into Kroondal is R32 per Kroondal Share. On 14 February 2001, AQPSA entered into a loan agreement with Impala for R124.8 million for the purpose of funding AQPSA's working capital requirements ("Impala Working Capital Loan"). As part of the Restructure, Impala has agreed to provide a R175 million guarantee in respect of a new facility to be provided to AQPSA until completion of the Marikana project.

Impala's involvement in the Aquarius Group will be strengthened by the Restructure. The Aquarius board views Impala's involvement as positive due to:

- (a) Impala being the world's second largest platinum producer;
- (b) Impala's ability to provide Aquarius with new platinum opportunities in South Africa (as evidenced by the Everest and Chieftains Plain project acquisitions); and
- (c) Aquarius' ability to access Impala's significant financial resources (as evidenced by the working capital loan provided to AQPSA and the security provided to Invested in respect of the R504 million Invested loan and to be provided in respect of the new loan facilities).

### 1.5 Invested

On 20 December 2000, AQPSA and Investee entered into a loan agreement pursuant to which Investee loaned AQPSA a capital amount of R504 million, which loan was guaranteed by Impal ("Original Investee Loan Agreement"). As at 31 December 2001, the loan was fully drawn ar amounted to approximately R555 million (including capitalised interest). Impala provided a guarantee to Investee for the R504 million loan.

As part of the Restructure, Investec will sell loan claims under the Original Investec Loan Agreement amounting to R360,399,184 to Impala, following which AQPSA will owe Investec R208,028,683 pursuant to the Original Investec Loan Agreement. Investec has agreed to provid to AQPSA new long term loan facilities to the value of up to R390 million ("New Investec Facility"), out of which AQPSA will settle its debts to Investec under the Original Investec Loa Agreement. Impala has agreed to pledge guarantees to Investec amounting to R175 million on behalf of Aquarius in respect of the New Investec Facility.

### 1.6 Reasons for the Restructure of the Aquarius Group

The present structure of the Aquarius Group does not enable optimal management of the Aquari Group's assets, which in turn impacts on the group's capacity to attract competitive equity and debt finance for the development of its present and future projects.

The main objective of the Restructure is to simplify the Aquarius Group's asset holding and structure in South Africa, as that group structure is operationally and administratively inefficien

and so that the required finance to develop the Marikana project can be secured on acceptable terms.

Aquarius wishes to undertake the Restructure to allow the assets, cashflows, technology and personnel of Kroondal to be applied for the benefit of the Aquarius Group. This would enable AQPSA to expand its mining and exploration activities in South Africa, the first of which will be through the development of the Marikana project. In addition, the current administration structure is proving to be inefficient and is excessively costly and will be materially streamlined, which will result in all of the Aquarius Group's platinum projects being housed in AQPSA.

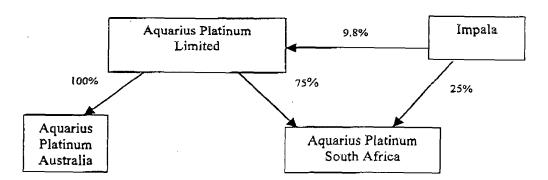
A summary of the reasons for, and benefits of, the Restructure is set out below:

- (a) Give the Aquarius Group direct access to cash flow: The Restructure would give the Aquarius Group direct access to the cashflows of Kroondal. In particular, AQPSA wishes to directly access the cash flows from Kroondal in order to fund the development of its other platinum interests and investment opportunities in South Africa.
- (b) More efficient capital raisings: The current structure of the Aquarius Group is overly complex and therefore deficient from a promotion and investment prospective which impacts on the group's ability to attract equity finance on competitive terms. The Restructure would enable the capital raisings for current and future platinum projects to be completed more effectively and cost-effectively utilising Kroondal's cashflows and substantial assets.
- Debt Requirements: Although a feasibility and mining optimisation study for the Marikana project was completed during early 2001, Aquarius and AQPSA have been unable to secure the funding required to develop the Marikana project on reasonable commercial terms as neither Aquarius nor AQPSA directly hold any income producin assets. The Kroondal Platinum Mine (the only asset within the Aquarius Group that generates income and cashflow) is situated within a separate legal entity, Kroondal.
- (d) Tax Efficiency: Aquarius' cash requirements are predominantly in AQPSA where its new platinum projects are developed. Aquarius' income producing assets are held in Kroondal, which is a separate legal and tax paying entity. The existing structure is inefficient, as the cash generated by Kroondal cannot be tax efficiently used to develothe new platinum projects.
- (e) Sharing of resources and personnel: The administration and management of Kroondal and AQPSA is currently inefficient as the divergent minority interests in Kroondal and AQPSA do not facilitate the sharing of resources, technology and personnel for the purpose of operating and developing the present and future platinum projects in South Africa. Aquarius proposes to utilise Kroondal's managerial expertis in the development of Marikana and other platinum projects.
- (f) Removal of conflicts of interest: The Restructure would avoid the conflicts of intere that exist between Kroondal and AQPSA which emanate from their having different shareholders and from the management of Kroondal being required to assist in the development of the Marikana project in AQPSA.
- (g) Reduction in debt costs: Kroondal has the operational performance track record for bringing Kroondal into production on time and below budget. The cost of the debt raised by AQPSA would be cheaper if the Kroondal assets are housed in AQPSA.

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# 1.7 Proposed Restructure of the Aquarius Group

If the Restructure is effected, the structure of the Aquarius Group will be as follows:



The steps to achieve the Restructure are set out below:

- (a) Aquarius, Kroondal, AQPSA and Aquarius Australia have entered into the Rationalisation and Sale of Business Agreement pursuant to which AQPSA will purchase Kroondal's entire business. A summary of the Rationalisation and Sale of Business Agreement is set out in section 1.9 of this Explanatory Memorandum.
- (b) Aquarius, AQPSA, Investec and Impala have entered into the Sale of Shares and Claims Agreement which, pursuant to Aquarius agrees to purchase all of the Kroonda Shares held by Impala and 5 AQPSA shares held by Impala and Investec agrees to sel loan claims owing to it under the Original Investec Loan Agreement to Impala. A summary of the Sale of Shares and Claims Agreement is set out in section 1.10 of this Explanatory Memorandum.
- (c) Application has been made to the South African Revenue Service to ensure that the Restructure will be classified as a qualifying transaction in terms of Section 39 of the South African Income Tax Act as it was applicable prior to 1 March 2002 ("South African Revenue Service Application"). Section 39 provides tax relief for companies undergoing internal reorganisations. Compliance with section 39 will ensure that the tax consequences for the Aquarius Group of the Restructure are minimised.
- (d) Aquarius will acquire a 0.5% interest in AQPSA from Impala for a cash consideration of R338,181. As a result, Aquarius' interest in AQPSA will increase to 75% and Impala will hold 25% of AQPSA. This is to satisfy the requirements of section 39 of the South African Income Tax Act, pursuant to which Aquarius is required to hold a minimum 75% interest in AQPSA.
- (e) Investec will sell to Impala loan claims under the Original Investec Loan Agreement which entitle Investec to claim from AQPSA an amount of R360,399,184. After completion of the sale of the loan claims to Impala, AQPSA will owe Investec R208,028,683 pursuant to the Original Investec Loan Agreement.
- (f) Aquarius will purchase all of the Kroondal Shares held by Impala, being 2,591,700, for an aggregate purchase price of R82,934,400, which purchase consideration will be

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satisfied through the cession by Aquarius of R82,934,400 of the consideration receivable from AQPSA.

- (g) Subject to satisfaction of the conditions precedent in the Rationalisation and Sale of Business Agreement, Kroondal will sell its business to AQPSA for R1.77 billion on loan account. The consideration receivable is interest free. As a result of the sale, the Aquarius Group's interest in Kroondal's net assets and undertakings will decrease from 95.22% to 75%.
- (h) Following the sale by Kroondal of the Kroondal business to AQPSA, Kroondal will distribute the consideration receivable from AQPSA to its shareholders as follows:
  - (i) the approximate 60 Kroondal minority shareholders (ie all shareholders other than the Aquarius Group) will receive their proportionate share of the AQPSA loan, which will be paid in cash at an amount of R32.00 per Kroondal Share, totalling approximately R1.8 million; and
  - (ii) Aquarius will receive loans receivable from AQPSA of approximately R1.771 billion.
- (i) In conjunction with the Restructure, Invested will provide AQPSA with a new long-term loan facility to the value of up to R390 million, the New Invested Facility, on terms set out in section 1.10 of this Explanatory Memorandum, to be applied as follows:
  - (i) repay the R208,028,683 outstanding balance under the Original Investec Loan Agreement;
  - (ii) repay the Impala Working Capital Loan; and
  - (iii) the remaining balance will be used for the development of the Marikana an Everest South projects and will provide the Aquarius Group with working capital to the extent required.

### 1.8 Terms of the restructure and sale of Kroondal's business to AQPSA

The Restructure and the sale of Kroondal's business to AQPSA are governed by the following interdependent agreements:

- (a) Rationalisation and Sale of Business Agreement; and
- (b) Sale of Shares and Claims Agreement.

Summaries of these agreements are set out in sections 1.9 and 1.10 of this Explanatory Memorandum.

### 1.9 Rationalisation and Sale of Business Agreement

On 22 March 2002 Aquarius, AQPSA, Kroondal and Aquarius Australia entered into the Rationalisation and Sale of Business Agreement pursuant to which, subject to satisfaction of the conditions precedent referred to below:

- (a) AQPSA agrees to purchase the business of Kroondal with effect from 1 April 2002;
- (b) the parties to the agreement agree to do all things necessary to ensure that the whole business of Kroondal is disposed of to AQPSA; and

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the parties agree that Kroondal shall convene a general meeting of its shareholders for the purpose of proposing a resolution for the winding up of Kroondal in terms of sections 349 and 350 of the South African Companies Act.

The agreement is conditional upon:

- (a) the Commissioner issuing such certificate(s) in terms of section 39(3)(b) of the South African Income Tax Act to the effect that the dispensations requested in the South African Revenue Service Application are granted;
- (b) the Commissioner agreeing to the dispensations in section 39(6) of the South African Income Tax Act, as referred to in the South African Revenue Service Application;
- (c) the members of Kroondal passing a resolution approving the sale of the business in terms of section 228 of the Companies Act;
- (d) the Director of Mineral Development at the Department of Minerals and Energy authorising the continuation of PGMs mining activities in the Kroondal mining area, notwithstanding the sale of Kroondal's business to AQPSA;
- (e) the Exchange Control Department of the South African Reserve Bank granting its approval, insofar as it may be required, for the transactions contemplated in the Rationalisation and Sale of Business Agreement and the Sale of Shares and Claims Agreement;
- (f) Aquarius' shareholders passing the Resolution and approving the Restructure; and
- (g) execution of the Sale of Shares and Claims Agreement,

on or before 30 April 2002.

The purchase price payable by AQPSA to Kroondal for the business shall, subject to any adjustment required pursuant to paragraphs (b) or (c) below, be R1, 773, 334, 336.

AQPSA shall discharge its obligation to pay the purchase price as follows:

- (a) AQPSA shall pay the purchase price within seventy-two hours of receipt of written demand therefor from Kroondal. Until such demand is made by Kroondal, such amount shall remain owing by AQPSA to Kroondal in a non-interest bearing loan account;
- (b) AQPSA shall discharge the liabilities for and on behalf of Kroondal as Kroondal's agent as and when the liabilities fall due for payment; and
- the purchase price may be adjusted if the net tangible asset value of Kroondal ("NAV in Kroondal's audited accounts for the period 1 July 2001 to 31 March 2002 ("Effective Date Accounts") differs by 5% or more from the NAV in the forecast of the board of Kroondal as at the close of business on 31 March 2002 ("Forecast Accounts"). The purchase price shall be increased or reduced, as the case may be, by R1 for each R1 that the NAV in the Effective Date Accounts is less than that set out if the Forecast Accounts. Such increase or reduction, as the case may be, shall be effected by Kroondal reducing or increasing its claim on loan account against AQPS.

The Rationalisation and Sale of Business Agreement provides that Kroondal shall be entitled to declare to its shareholders, as a dividend in specie, and in proportion to their shareholdings in

Kroondal (or in such other proportion as may be agreed by the shareholders of Kroondal), its claims to payment of the purchase price.

# 1.10 Sale of Shares and Claims Agreement

Investec, Aquarius, AQPSA and Impala entered into an agreement on 22 March 2002 ("Sale of Shares and Claims Agreement"), pursuant to which, subject to satisfaction or waiver of the conditions precedent in the Rationalisation and Sale of Business Agreement:

- (a) Aquarius agrees to purchase from Impala 5 shares in the capital of AQPSA for a purchase price of R338,181;
- (b) Investee agrees to sell to Impala loan claims under the Original Investee Loan Agreement which entitle Investee to claim from AQPSA an aggregate amount of R360,399,184 for the price of R360,399,184;
- (c) AQPSA acknowledges and agrees that:
  - (i) after the sale of the loan claims, AQPSA will owe Investec R208,028,683;
  - (ii) it intends to settle its debts to Investee out of the funds which it will borrow from Investee under the New Investee Facility;
- (d) the parties agree that Aquarius will receive, by way of a dividend in specie, claims against AQPSA for 99.9% of the purchase price of Kroondal's business;
- (e) Aquarius will purchase all of the Kroondal Shares held by Impala, being 2,591,700 Kroondal Shares, for an aggregate purchase price of R82,934,400, payment for which will be satisfied by Aquarius ceding to Impala the right to receive payment of R82,934,400 from AQPSA (being part of the dividend received by Aquarius from Kroondal);
- (f) the parties agree that, after completion of the Restructure, AQPSA will be indebted to
  - (i) Aquarius, for an amount of R1,120,116,837; and
  - (ii) Impala, for an amount of R443,333,584, comprising:
    - A. R360,399,184 arising pursuant to the purchase of loan claims from Investee;
    - B. R82,934,400 arising pursuant to the purchase of the Kroondal Shares by Aquarius,

and all amounts owing by AQPSA to Impala under the Impala Working Capital Loan.

A term sheet in respect of the New Investee Facility is attached to the Sale of Shares and Claims Agreement as Annexure A. A summary of the main terms of the terms sheet is set out below:

- (a) The facility is for a loan of up to R390 million, comprising:
  - (i) Facility A a loan of R215 million, the purpose of which is to repay the outstanding amount under the Original Investee Facility Agreement; and

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- (ii) Facility B a loan of R175 million, the purpose of which is to repay the Impala Working Capital Loan and to provide funds for the development of the Marikana project.
- (b) The term of the facility is 4 years, or such shorter period as may be agreed.
- (c) Interest is payable quarterly on:
  - (i) Facility A at the Investec Prime Rate (which is currently 14.0%) until Marikana Project Completion, as defined in the term sheet, and at the Investec Prime Rate minus 1.00% post Marikana Project Completion; and
  - (ii) Facility B until Marikana Project Completion at the Investec Prime Rate minus 1.00% and post Marikana Project Completion at the Investec Prime Rate minus 1.00%, subject to satisfactory fulfilment of a series of tests that evidence that the Marikana project has been operating within cost, production and other operating parameters.
- (d) Capital repayments are to be made in quarterly instalments, commencing 18 months after the effective date.
- (e) AQPSA agrees that all proceeds received from PGM concentrate sold to Impala shall be deposited into an account with Investec, which will be pledged in favour of Investec.
- (f) As security for the facility, a first ranking fixed and floating charge will be given over all of the assets of AQPSA. Further, Aquarius will guarantee the facility and pledge is shareholding in AQPSA. Impala has agreed to provide a guarantee in respect of Facility B, until completion of the Marikana Project.
- (g) The following fees are payable in respect of the facility:
  - (i) a facility fee of 1% of the facility;
  - (ii) an underwriting fee of 1.5% of the facility;
  - (iii) a commitment fee of 0.5% per annum on the undrawn amount of the facility;
  - (iv) a breakage fee of 0.5% of the facility if Aquarius determines not to procee with implementation of the facility.
- (h) The Aquarius Group provides standard representations and warranties in respect of the facility.
- 1.11 ASX Listing Rule 10.1 Acquisition of a substantial asset by, or disposal a substantial asset to, a related party, a subsidiary or a substantial holder

ASX Listing Rule 10.1 provides that an entity must not acquire a substantial asset from, or dispose of a substantial asset to, a related party, a subsidiary or a substantial holder without the approval of shareholders.

An asset will be regarded as "substantial" for the purposes of ASX Listing Rule 10.1 if its value or the value of the consideration for it is, or in ASX's opinion is, 5% or more of the equity interests of the company (being the sum of paid up capital, reserves and accumulated profits or

losses, disregarding redeemable preference share capital and outside equity interests, as shown in the consolidated financial statements) as set out in the latest financial statements of the company given to ASX.

Listing Rule 10.1 applies to the Restructure as:

- (a) Impala is a "substantial holder" for the purposes of Listing Rule 10.1 as within the las 6 months it held more than 10% of the issued shares in Aquarius. Impala currently holds 9.8% of the issued shares in Aquarius;
- (b) Impala holds 25.5% of the issued shares in AQPSA;
- the value of the Kroondal Shares to be acquired from Impala exceeds the 5% threshol referred to in Listing Rule 10.1; and
- (d) the value of the Kroondal assets to be acquired by AQPSA exceeds the 5% threshold referred to in Listing Rule 10.1.

As required by ASX Listing Rule 10.10.2, a report on the Restructure has been prepared by an independent expert, Ernst & Young Corporate Finance Pty Limited, and forms Annexure A to this Explanatory Memorandum. The report addresses whether the Restructure as a whole is fair and reasonable to the Aquarius shareholders which are not associated with Impala.

The expert concludes that the Restructure is fair and reasonable to the Aquarius shareholders which are not associated with Impala.

Please read the Expert's Report accompanying this Explanatory Memorandum in its entirety.

# 2. Glossary of Terms

In this Explanatory Memorandum the following expressions have the following meanings:

- "ASX" means Australian Stock Exchange Limited.
- "Aquarius" or "Company" means Aquarius Platinum Limited
- "Aquarius Australia" means Aquarius Platinum (Australia) Limited.
- "Aquarius Group" means the companies within the Aquarius group of companies, namely Aquarius, Aquarius Australia, AQPSA and Kroondal.
- "Aquarius South Africa" and "AQPSA" means Aquarius Platinum (South Africa) Pty Ltd.
- "Board" means the board of Directors.
- "Directors" means the directors of the Company from time to time.
- "General Meeting" or "Meeting" means the general meeting of the Company to be convened accordance with the Notice of General Meeting.
- "Impala" means Impala Platinum Holdings Limited.
- "Investec" means Investec Bank Limited.
- "JSE" means the Johannesburg Stock Exchange.

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- "Kroondal" means Kroondal Platinum Mines Limited.
- "Kroondal Shares" means fully paid ordinary shares in the capital of Kroondal.
- "Listing Rules" means the listing rules of ASX.
- "Notice" or "Notice of General Meeting" means the notice of general meeting which accompanies this Explanatory Memorandum.
- "ordinary resolution" means a resolution that has been passed by more than 50% of the votes cast by members entitled to vote on the resolution.
- "R" means Rand, the official currency of South Africa.
- "Rationalisation and Sale of Business Agreement" means the agreement dated 22 March 200 between Aquarius, AQPSA, Aquarius Australia and Kroondal, a summary of which is set out in Section 1.9 of this Explanatory Memorandum.
- "Resolution" means the resolution referred to in the Notice of General Meeting.
- "Restructure" means the proposed reorganisation of the corporate structure and operations of the Aquarius Group.
- "Sale of Shares and Claims Agreement" means the agreement dated 22 March 2002 between Aquarius, AQPSA, Impala and Investec, a summary of which is set out in Section 1.10 of this Explanatory Memorandum.



# **FACSIMILE TRANSMISSION**

Date:

9 April 2002

To:

Office of International Corporation Finance

Company:

Securities and Exchange Commission

Fax:

0011 1 202 942 9624

From:

Melissa Sturgess

Number of Pages:

499

(Including this cover page)

Re:

Aquarius Platinum Limited - File # 82-5097

Part Two

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(incorporated in Bermuda – Registration No: EC26290)

CLARENDON HOUSE, 2 CHURCH STREET, HAMILTON
PO BOX HM666, HAMILTON HMCX, BERMUDA

EMAIL; info@aquariusplatinum.com WEB SITE: www,aquariusplatinum.com



19 March 2002

Securities and Exchange Commission Division of Corporate Finance Office of International Corporation Finance 450 Fifth Street, N.W. Washington, D.C. 20549

Re: Aquarius Platinum Limited - File # 82-5097

Dear Ladies and Gentlemen.

We are furnishing herewith pursuant to Rule 12g3-2(b)(1)(i) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") the following additional documents that the Aquarius Platinum Limited (the "Company") has made public, distributed or filed with the Australian Stock Exchange Limited (the "ASX") the Australian Securities and Investments Commission (the "ASIC") the Alternative Investment Market ("AIM") of the London Stock Exchange ("LSE") or the Registrar of Companies of Bermuda since 4 May 2001.

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	7 70111 2002		THEORIGENIETIC	1 140 ace of the could be to be the many 1 1/10 miles

The attached documents are being furnished with the understanding that they will not be deemed "filed" with the Securities and Exchange Commission or otherwise subject to the liabilities of Section 18 of the Exchange Act, and that neither this letter nor the furnishing of such documents shall constitute an admission for any purpose that the Company is subject to the Exchange Act.

If you have any questions or comments please call the undersigned at +618 9485 2111.

Very truly yours

**AQUARIUS PLATINUM LIMITED** 

**MELISSA STURGESS** 

(incorporated in Bermuda - Registration No: EC26290)

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# ■ ERNST & YOUNG CORPORATE FINANCE PTY LIMITED

 Holder of Dealer Licence (Corporations Law)
 ABN 87-003-599-844 ■ Tel 61 8 9429 2222 Fax 61 8 9429 2192

Central Park 152 St Georges Terrace Perth WA 6000 Australia

GPO 80x M939 Perth WA 6843

5 April 2002

The Independent Directors
Aquarius Platinum Limited
Claredon House
2 Church Street
Hamilton
Bermuda

Dear Sirs

# Independent Expert's Report

### 1. INTRODUCTION

This report has been prepared by Ernst & Young Corporate Finance Pty Limited ("EYCF") at the request of the Independent Directors of Aquarius Platinum Limited ("Aquarius" or "the Company") and is to accompany the Notice of Extraordinary Meeting and Explanatory Memorandum for the shareholders' meeting ("the Meeting") to be held on or about 29 April 2002.

At the Meeting, Aquarius shareholders will be asked to consider a resolution seeking the approval of a number of interdependent transactions. These transactions form part of a complex reorganisation of the Company's corporate structure ("the Proposed Corporate Restructure"), with the main outcomes being summarised as follows:

- Aquarius will increase its interest in Aquarius Platinum (South Africa) Limited ("AQPSA") by 0.5 % to 75% for a cash consideration of R338,181. AQPSA owns the Marikana, Everest and Chieftains Plain Projects;
- The effective sale of a 20.2% relevant interest in the Kroondal Project by Aquarius. The sale is to be achieved by the sale of the net assets and business undertakings of Kroondal Platinum Mines Limited ("KPM") ("the KPM Net Assets") to AQPSA; and
- The Company's existing loan facilities with Impala Platinum Limited ("Impala") and Investec Bank Limited ("Investec") will be refinanced.

KPM is a 95.2% owned subsidiary of Aquarius. The KPM Net Assets are to be sold by KPM to AQPSA, which is currently owned 74.5% by Aquarius and 25.5% by Impala. As a result of the Proposed Corporate Restructure, through their respective shareholdings in AQPSA, Aquarius' interest in the Kroondal Project will decrease by 20.2% and Impala's interest in the Kroondal project will increase by 20.2%. We note that Impala owns 9.8% of the issued shares of Aquarius, having owned in excess of 10% in the last six months. The dilution of Aquarius' relevant interest in the Kroondal Project is valued at more than 5% of the shareholders' equity of the Company. In view of this and Impala's shareholding in Aquarius, Listing Rule 10.1 of the Australian Stock Exchange Limited ("ASX") is deemed to apply. As such, the sale of the KPM Net Assets requires approval from the non-associated shareholders of the Company.

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Exchange Limited ("ASX") is deemed to apply. As such, the sale of the KPM Net Assets requires approval from the non-associated shareholders of the Company.

While other minor components of the Proposed Corporate Restructure also require shareholder approval the various agreements that comprise the Proposed Corporate Restructure are interdependent on each other. Accordingly, in considering the sale of the KPM Net Assets it is appropriate that we consider the Proposed Corporate Restructure in its entirety.

Under Listing Rule 10.10, a notice prepared in relation to a meeting of shareholders convened for the purpose of Listing Rule 10.1 must be accompanied by an independent expert's report stating whether or not, in his or her opinion, the transaction is fair and reasonable to the non-associated shareholders. Accordingly, the purpose of our report is to provide an opinion as to whether or not the Proposed Corporate Restructure is fair and reasonable to the non-associated shareholders of Aquarius. The 'non-associated shareholders' of Aquarius are those shareholders not associated with Impala.

In addition to this introduction, this report has been set out under the following sections and appendices:

- 2. Opinion
- The Proposed Corporate Restructure
- 4. Background to the Aquarius Group
- 5. The Platinum Industry
- Basis of Assessment
- 7. Assessment of the Proposed Corporate Restructure
- 8. Summary and Conclusion

Appendix 1 Valuation of KPM

Appendix 2 Selection of a Discount Rate

Appendix 3 Sources of Information and Declarations

Appendix 4 Report on the KPM Mineral Interests by Snowden Mining Consultants Pty Ltd

### 2. OPINION

Based on the detailed discussion throughout this report, in our opinion, the Proposed Corporate Restructure is fair and reasonable to the non-associated shareholders of Aquarius.

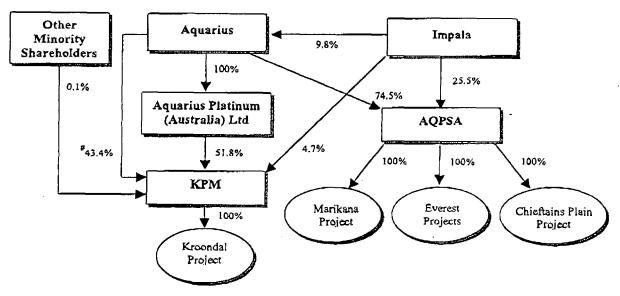
This opinion should be read in conjunction with the rest of this report, including the summary and conclusion contained in Section 8 and the sources of information and declarations contained in Appendix 3.

### 3. THE PROPOSED CORPORATE RESTRUCTURE

### 3.1 Summary of the Proposed Corporate Restructure

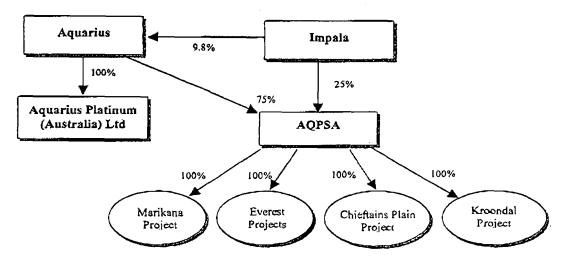
The Proposed Corporate Restructure is complex with its implementation requiring several steps, all of which are detailed in several interdependent agreements. The Explanatory Memorandum sets out in detail the terms and condition of the various agreements. The salient components of the restructure are summarised below.

The chart below summarises the Company's current corporate structure and project interests together with Impala's relevant interests. In this report Aquanus and its subsidiaries are referred to as the "Aquanus Group" or "the Group".



<sup># 29%</sup> is held by AQPSA in trust for Aquarius (refer Section 4.4.6).

The chart below summarises the impact of the Proposed Corporate Restructure.



Under the existing corporate restructure Aquarius' interest in the KPM Net Assets, in other words the Kroondal Project, is 95.2%. As a consequence of the Proposed Corporate Restructure the KPM Net Assets will be sold to AQPSA and Aquarius' interest in AQPSA will increase from 74.5% to 75%. Accordingly, Aquarius' interest in the KPM Net Assets will be diluted by 20.2% from 95.2% to 75%.

The consideration for the sale of the KPM Net Assets to AQPSA is R1.773 billion on deferred terms unless KPM and ultimately Aquarius demand payment. On this basis, the effective consideration being received by Aquarius for the dilution of its interest in the KPM Net Assets is R360 million (R1.773 billion x 20.2%).

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In addition to the above, other key components of the Proposed Corporate Restructure include:

- The acquisition of a 0.5% interest in AQPSA from Impala by Aquarius for cash consideration of R338,181;
- Investec will provide a new R390 million facility ("R390 million Investec Facility") to refinance R332.8 million of existing AQPSA loans representing R208 million of the R568 million facility owing to Investec ("R568 million Investec Facility") and a working capital loan from Impala of R124.8 million. The remaining R57.2 million unutilised facility is to be applied to the ongoing development of the Marikana Project;
- Impala will refinance the remaining R360 million balance (R568 million less R208 million) of the R568 million Investee Facility; and
- KPM will be liquidated resulting in the removal of the remaining KPM minority shareholders.

## 3.2 Proposed Corporate Restructure Transaction Sequence

Purchase of 0.5% AQPSA

Aquarius will acquire a 0.5% interest in AQPSA from Impala for cash consideration of R338,181. As a result, Aquarius' interest in AQPSA will increase from 74.5 % to 75% and Impala's interest will reduce from 25.5% to 25%.

Acquisition of R360 million Investec Loan by Impala

Impala will refinance R360 million of the R568 million Investec Facility by acquiring from Investec R360 million of the loans payable by AQPSA. There are no defined repayment terms for the R360 million loan amount acquired by Impala. Commercial interest is only applicable on R69 million ([R568m-R360m] x 25%/0.75%) of the loan balance.

Sale of KPM Net Assets to AQPSA

The KPM Net Assets will be sold to AQPSA for R1.773 billion on deferred payment terms unless KPM and ultimately Aquarius demand payment. The consideration is equivalent to R32 per KPM share. The consideration receivable is interest free.

Acquisition of Impala's Interest in KPM

Aquarius will acquire Impala's interest in the shares of KPM for R82.9 million being R32 per KPM share. As consideration, Aquarius will cede to Impala R82.9 million of the consideration receivable from AQPSA as distributed to Aquarius by KPM (refer below).

Distribution of the Consideration Receivable from AQPSA

Subsequent to the sale of the KPM Net Assets, KPM will distribute the consideration receivable from AQPSA to the shareholders of KPM. In respect of the minority shareholders of KPM (approximately 50 members), who hold in aggregate approximately 55,426 KPM shares, they will receive a total cash distribution of R1.8 million or R32 per KPM share. In respect of Aquarius, KPM will distribute the consideration receivable from AQPSA, being the remaining R1.688 billion (R1.773 billion less R82.9 million to Impala and R1.8 million to the other minority shareholders).

### R390 million Investec Facility

Investec will provide AQPSA with a new long-term loan facility of R390 million; the loan terms are summarised in Section 3.2 below. Whilst the Proposed Corporate Restructure is not dependent on the R390 million Investec Facility, we note the following terms and conditions are contained within the restructure agreements:

- the Proposed Corporate Restructure is a condition precedent for the provision of the new Investec loan facility;
- the proceeds of the R390 million Investec Facility will be applied to;
  - the repayment of the R124.8 million working capital loan payable by AQPSA to Impala;
  - the repayment of the R208 million balance outstanding in respect of the existing R568 million Investec Facility. The remaining R360 million owing to Investec is be refinanced by way of Impala acquiring that amount of the debt from Investec (refer above); and
- pursuant to the Proposed Corporate Restructure agreements, Impala has undertaken to provide a R175 million guarantee to Investee in respect of the new R390 million Investee Facility.

## 3.3 Net Impact of Proposed Corporate Restructure on AQPSA's Loan Commitments

Based on our analysis of the Proposed Corporate Restructure, presented below is a detailed summary of the AQPSA loan accounts pre and post the restructure.

	AQPSA Loan Accounts (VI)			· · · · · · · · · · · · · · · · · · ·
	Note	Interest Bearing R million	Non-interest Bearing R million	Total R million
Pre Proposed Corporate Restructure				
Loans payable by AQPSA to Aquarius	(i)	-	-	-
Loans payable by Aquarius to AQPSA	(ii)	568	-	5 <b>6</b> 8
Loans payable by AQPSA to Investec	(ii)	(568)	-	(568)
Loans payable by AQPSA to Impala	(iii)	(125)	•	(125)
		(125)	<u>-</u>	(125)
Post Proposed Corporate Restructure				
Loans payable by AQPSA to Aquarius	(i)	-	(1,688)	(1.120)
Loans payable by Aquarius to AQPSA	(ii)	-	568	(1,120)
Loans payable by AQPSA to Invested	(iv)	(333)		(333)
Loans payable by AQPSA to Impala	(v)	(69)	(374)	(443)
		(402)	(1,494)	(1,896)

- (i) Aquarius' ultimate interest in the consideration receivable from the sale of the KPM Net Assets to AQPSA. Aquarius interest comprises the consideration receivable of R1.773 billion net of Impala's and the minority KPM shareholders' interests (R1.773 billion less R82.9 million less R1.8 million).
- (ii) Loans payable by AQPSA to Investee with loans funds applied to the acquisition of KPM shares pursuant to the takeover by Aquarius of KPM (refer Section 4.4.6). The shares were acquired on behalf of Aquarius and accordingly Aquarius has indemnified AQPSA in respect all costs associated the facility.
- (iii) Working capital loan provided by Impala to AQPSA (refer Section 4.4.7). The loan is to be repaid from the new R390 million Invested Facility.

- (iv) The new R390 million Investec Facility. The outstanding balance as shown comprises the:
  - the remaining balance of R208 million of the R568 million Investec Facility following the acquisition by Impala of R360 million loans payable by AQPSA to Investec;
    - the repayment of the R124.8 million working capital facility provided by Impala.

The R390 million Investec Facility is on commercial terms with repayments over four years.

- (v) Impals will acquire from Investec loans payable by AQPSA to Investec aggregating R360 million. The remaining balance comprises Impala's R82.9 million interest in the KPM sale consideration receivable from AQPSA. Of the R443 million, R69 million is interest bearing the balance of R374 million is non-interest bearing. There are no refined repayment terms of the loan balance.
- (vi) The table excludes existing shareholder loans of R131.6 million payable to Aquarius as at 31 December 2001.

  These loans have no impact on the Proposed Corporate Restructure.

### 4. BACKGROUND TO THE AQUARIUS GROUP

### 4.1 Overview of the Aquarius Group

### 4.1.1 Summary

Aquarius is a company incorporated in Bermuda and listed on both the Alternative Investment Market ("AIM") of the London Stock Exchange ("LSE") and the ASX. The Group's principal activities comprise the exploration, extraction and processing of platinum group metals ("PGMs") in South Africa. In addition to its head office in Bermuda, the Group also has offices in South Africa and Australia.

The Group's principal PGM projects comprise the Kroondal, Marikana, Everest (North and South) and Chieftains Plain Projects, which are all located in the Bushveld Complex in South Africa. The Kroondal Project is the only operational mine currently owned by the Group. A detailed feasibility has been completed for the Marikana Project with production expected to commence in the first quarter of the 2003 calendar year.

The Kroondal project is owned by KPM. AQPSA owns the Marikana, Everest South, Everest North and Chieftains Plain Projects.

### 4.1.2 Aquarius Group's Platinum Projects

### Kroondal Project

The Kroondal Project is located approximately 10 kilometres to the south east of Rustenburg in South Africa and is presently the only operational mine within the Aquarius Group. The mineral property covers approximately 6 kilometres of the UG2 platinum reef and is currently being mined through a combination of open pit and underground mining techniques. The Kroondal Project commenced production in August 1999 for a development cost of approximately US\$43 million.

Kroondal Project production for the year ended 30 June and the six months ended 31 December 2001 was approximately 146,800 PGM (4E) ounces and 109,901 PGM (4E) ounces respectively. Following the completion of a US\$20 million expansion in June 2001, production is expected to increase to an estimated 240,000 PGM ounces per annum for a further eight to nine years.

The Kroondal Project is owned by KPM, KPM is discussed in further detail in Section 4.2 below. EYCF have commissioned Snowden Mining Consultants Pty Ltd ("Snowden's) to prepare a comprehensive report on the operations and outlook for the Kroondal Project, a copy of the report is attached in Appendix 4.

### Marikana Project

The Marikana Project is located approximately 20 kilometres east of Rustenburg and 8 kilometres from the Kroondal Project. The Marikana Project forms part of the UG2 reef within the 'Bushveld Complex'. The project is currently being developed for an estimated capital cost of R641 million with production projected to commence in early 2003. Initially production will comprise an open pit mine before shifting to an underground mine in 2007. Marikana is projected to produce an estimated 1.5 million PGM ounces between 2003 to 2014.

### Everest South and Everest North Projects

The Everest Projects comprise the Everest South and Everest North projects, which are located on the southern section of the eastern limb of the 'Bushveld Complex'. The Everest South project, which is substantially more advanced than Everest North, had estimated resources of 5.5 million ounces of PGM as at 30 June 2001.

The Company is near completing a drilling programme at Everest South and the conduct of a feasibility study having recently commenced. Preliminary indications suggest the project may be developed into an underground mine that will have the capacity to produce 220,000 ounces of PGM per annum. Aquarius has previously stated that it anticipates that Everest South will commence production around mid (calendar) 2004.

### Chieftains Plain Project

Chieftains Plain is an undeveloped, potentially significant resource located due west and down dip to Everest South. The Company has applied for an exploration permit over the adjoining property, Walhalla. The resource, whilst potentially significant, is approximately 1200 to 2400 metres from the surface and is not scheduled for development for some time.

### 4.1.3 Reserves and Resources

As at 30 June 2001, the Company's resources statement was as follows:

	Kroondal (95%)		r	Marikana (75%) <sup>2</sup>		Everest South (75%)			Total			
	mil tons	PGM g/t	mit oz	mil tons	PGM g/t	mil oz	mil tons	PGM g/t	mil oz	mil tons	PGM g/t	mil xo
Measured Indicated Inferred	<sup>1</sup> 21.6	5.24	3.64 -	13.3 7.2 0.3	4.27 4.49 3.94	1.83 1.04 0.04	8,5 17.0 10.8	4.6 4.7 4.7	1.26 2.57 1.63	τ	Jnclassif	ied
Total	21.6	5.24	3.64	20.8	4.34	2.90	36.3	4.7	5.48	78.7	4.8	12.02

Notes: I - Represents combined Measured and Indicated Resource

2 - Excludes Salenc and Karee areas

As at 30 June 2001, Aquarius' reported reserves included in the above resources were as follows.

	Kroondal (95%)		Marikana (75%) 1		Everest South (75%)			Total				
	mil tons	PGM g/t	mil oz	mil tons	PGM g/t	mil oz	mil tons	PGM g/t	míl oz	mil tons	PGM g/t	mil oz
Proved & Probable 2	25.1	2.89	2.33	18.9	3.75	2.28				44.0	3.26	4.61
Total	25.1	2.89	2.33	18.9	3.75	2.28	_	-	-	44.0	3.26	4.61

Notes: 1 - Excli

### 4.1.4 Aquarius' Share Capital Structure

At the date of this report Aquarius has on issue 72,791,234 fully paid common shares. The top 20 shareholders hold approximately 71% (at 28 February 2002) of the Company's common shares. Of the Company's common shares, the majority (approximately 68%) are held by shareholders in the United Kingdom and Australia.

The substantial shareholders of Aquarius as at the date of this report are listed in the table below:

	Number of Shares Fully Paid Shares	Percentage Fully Paid Shares
Tollerton Enterprises Limited	9,503,161	11.9%
Impala	7,141,966	9.8%
ING Australia Pty Ltd	5,392,773	7.6%

Tollerton Enterprises Limited is company associated with Mr Michael Adams, a former director of Aquarius.

### 4.2 Overview of KPM

### 4.2.1 Summary

KPM is a junior platinum producer based in Johannesburg, South Africa. KPM owns and operates the Kroondal Project located 10 kilometres from Rustenburg in the mineral rich Bushveld Complex of South Africa. KPM is 95.2% owned by Aquarius.

### 4.2.2 Production History

Presented in the table below is a historical summary of KPM for the two years to 30 June 2000 and 2001 and the six months to 31 December 2001:

I - Excludes Salene and Karee areas

<sup>2 -</sup> The above reserves reflect the fully diluted minable tonnes net of pillars.

Mining Production	Year To	Үезг То	6 Months to
	<b>30 June 2000</b>	30 June 2001	31 December 2001
Underground (reef tons)	510,750	1,236,143	648,316
Opencast (reef tons)	355,247	312,102	165,593
Run of Mine (tonnes)	1,184,549	2,128,699	1,254,798
Crushed	1,379,405	2,073,918	1,423,079
Processing	1,372,000	2,027,041	1,399,534
Recovery (%)	60.64	<b>72.4</b> 8	155.27
Concentrate Produced (tonnes)	4,060	8,148	10,180
In Situ Grade			
Platinum (g/t)	3,31	3.19	6.24
Palladium (g/t)	1.54	1.48	2.90
Rhodium (g/t)	0.62	0.60	1.17
Gold (g/t)	0.05	0.05	0.10
Copper (%)	0.009	0.007	0.015
Nickel (%)	0.063	0.052	0.125
Chrome (%)	30.47	32.10	64.44
Contained PGMs + Gold in Conc			
Platinum (028)	49,300	88,052	66,804
Palladium (ozs)	22,738	42,271	31,108
Rhodium (ozs)	7,598	15,349	11,329
Gold (ozs)	558	1,098	660
Ruthenium (ozs)	11,907	23,929	18,079
Iridium (ozs)	3,002	5,902	4,319
PGM (ozs) (4E)	80,194	146,770	109,901
Cash Cost per Ounce			
PGM (R/ozs) (4E)	1,508	1,551	3,059

KPM output comprises a concentrate that is sold to Impala pursuant to a life of mine offtake agreement.

### 4.2.3 Reserves

Presented in the table below is a summary of KPM's ore reserves as at 30 June 2001:

Category	Ore (kt)	4E (g/t)	Pt (g/t)	<b>Pd</b> (g/t)	Rh (g/t)	Au (g/t)
Proven	2,180.80	5.77	3,50	1.69	0.52	0.06
Probable	12,978.70	5.65	3.26	1.79	0.54	0.04
Total	15,159.50	5,67	3.29	1.77	0.54	0.04
Platinum gr	oup element split	(%)	58.0%	31.2%	9.5%	0.7%

### 4.2.4 Financial Performance

Presented in the table below is a summary of KPM's earnings for the years to 30 June 2000 and 2001 and the six months to 31 December 2001:

	Audited Year Ended 30 June 2000 R million	Audited Year Ended 30 June 2001 R million	Unaudited <sup>ii</sup> 6 months Ended 31 December 2001 R million
Revenue	297.8	686.0	387.6
Operating Expenses	131.7	253.5	193.8
Net Operating Profit	166.2	432.4	193.7
Net Financing income/(costs)	(14.1)	33.5	133.3
Net Profit before taxation	152.1	466.0	327.0
Taxation	45.2	142.2	98.0
Net Profit	106.8	323.8	229.0
Headline Earnings per Share (Rand)	R2.98	R7.35	
Diluted Earnings per Share (Rand)	R2.42	R7.28	

subject to review by the Company's auditors.

On 3 May 2001 KPM announced to the market that it would make a return of capital to its shareholders by way of a reduction of the share premium account in the amount of R6.00 per KPM share. Under this return of capital, KPM returned R329.5 million to shareholders with Aquarius receiving approximately US\$39 million.

KPM's balance sheet as at 31 December 2001 is contained in Appendix 1.

### 4.3 Acquisition of KPM by Aquarius Group

As at the date of this report, Aquarius Group owns approximately 95.2% of KPM. Prior to the initial public offering and listing of KPM on the JSE in August 1998, KPM was a wholly owned subsidiary of Aquarius. After giving effect to the initial public offering, Aquarius's interest in KPM was reduced to approximately 44.5%. Aquarius interest dropped to 43.87% before increasing to the current level of 95.2% as a result of the takeover bid by Aquarius in December 2000 and subsequent share purchases. Described below is a chronological summary of the significant events leading up and relating to the cash take over offer for KPM by Aquarius.

On the 24 July 2000, Aquarius made an announcement that it intended to acquire the remaining shares it did not own in KPM by a Scheme of Arrangement ("the Scheme"). At that time Aquarius held 43.87% of KPM's ordinary shares and 46.01% of the KPM Listed Options. Under the proposal, KPM shareholders would receive one Aquarius share for each KPM share and one Aquarius share for two KPM Listed Options.

On 31 August 2000, KPM announced it had entered into a joint venture with Anglo American Platinum Corporation Limited ("Amplats"). On 23 October 2000, Aquarius announced that the terms of the Scheme had been revised. Reflecting the enhanced value from the joint venture with Amplats, revised the terms offered to 1.2 Aquarius shares for every 1 KPM share and 0.929 Aquarius shares for every 1 KPM Listed Option. The independent members of the KPM Board recommended shareholders accept the Scheme.

On 20 December 2000 and following strong indications that the Scheme would be disallowed by the South African Reserve Bank ("SARB"), Aquarius announced its intention to make an unconditional cash offer to acquire all the KPM shares and options not already held by Aquarius and its subsidiaries ("KPM Cash Bid"). Under the terms of the KPM Cash Bid, Aquarius offered R32 for each KPM ordinary share and R22.80 for each KPM Listed Option.

The KPM Cash Bid was funded through a combination of a R504 million debt facility with Investec (being the R568 million Investec Facility) and an equity placement on 19 December 2000 of 8.74 million shares at \$7.50 per share raising A\$65.5 million. The R504 million loan facility with Investec was guaranteed by Impala, the terms of the loan facility are summarised in Section 4.4.6 below.

Following the announcement of the KPM Cash Bid, Northam Platinum Limited ("Northam") made an announcement to the JSE expressing its interest in acquiring 100% of KPM at R40 per KPM share and R30.80 per KPM Listed Option. However, Aquarius rejected the expression of interest and ultimately, a formal takeover offer from Northam did not eventuate.

At the close of the KPM Cash Bid in February 2001, Aquarius had increased its interest in KPM to approximately 75%. Since that date Aquarius continued to acquire the remaining KPM shares, increasing its shareholding in KPM to 95.2%. On 19 April 2001 Aquarius announced its intention to delist KPM at the earliest opportunity. KPM was delisted on 10 August 2001. Of the 4.7% not owned by Aquarius, Impala owns 4.6% and the other minority shareholders own 0.1%.

# 4.4 The Relationship between Aquarius Group and Impala

### 4.4.1 Overview

Overview of Impala

Impala is a South African based platinum mining company and the second largest producer of platinum in the world. The company reported profits of R363 million for 2001 and currently has a market capitalisation of approximately US\$3.8 billion. The company's major shareholder, Gencor Limited, owns 46.3% of Impala. Gencor is a long established and substantial South African mining house.

Impala's mining operations are principally located in the Rustenburg/Phokeng area that accesses both the UG2 and Merensky reefs. The company also owns substantial refining facilities where it treats both Impala production and toll treats third party concentrate.

Presented in the table below is a summary of the Impala's reserve statement (limited to 1,700 m below surface) as at 30 June 2001:

Orebody	Category	Tonnage (millions)	Grade 5 pge& Au	Pt oz million:
Merensky	Proved	18	4.88	2
•	Probable	94	4.69	8
UG2	Proved	22	5.10	2
	Probable	122	5.16	10
Total		256	4.96	22

In addition to the abovementioned platinum projects and its 9.8% interest in Aquarius, Impala has investments in several companies including an 83% interest of Barplats

Investments Limited, 27% in Western Platinum and Eastern Platinum (collectively known as "Lonplats"). Barplats is listed on JSE. The remaining 73% interest in Lonplats is owned by Lonmin plc, a company listed on the LSE. An overview of the platinum industry, including a comparison of the key industry participants, is contained in Section 5.

### Relationship with Aquarius Group

The relationship between Aquarius and Impala has evolved over recent years, a summary of the formal arrangements is provided below:

30 Apríl 1998	KPM Concentrate Offtake Agreement (refer Section 4.4.2)
18 March 1999	Placement of Aquarius Shares with Impala (refer Section 4.4.3)
8 February 2000	The Impala Co-operation Agreement (refer Section 4.4.4)
15 December 2000	Appointment of an Impala Director, Ms Catherine E Markus as a Non-Executive Director of Aquarius. Ms Markus is one of five directors of Aquarius.
10 July 2000	Acquisition of the Everest and Chieftains Plains Projects by AQPSA (refer Section 4.4.5)
20 December 2000	R504 million loan to Aquarius by Investee with a cash collateral guarantee by Impala (refer Section 4.4.6)
14 February 2001	R124.8 million loan to AQPSA by Impala (refer Section 4.4.7)

An outline of Impala's participation in the Proposed Corporate Restructure is contained in Section 3 above.

### 4.4.2 Concentrate Offtake Agreement

On the 30<sup>th</sup> April 1998, an offtake agreement was entered into between Aquarius, KPM and Impala Refining Services Limited ("IRS") (previously known as Platinum Sales Limited), a wholly owned subsidiary of Impala ("the Offtake Agreement"). Under the terms of the Offtake Agreement, KPM agreed to sell and supply to IRS and IRS agreed to purchase for the life of mine, Kroondal Project PGM concentrate. The key trading terms contained within the Offtake Agreement are strictly confidential and only a limited summary is outlined below:

- The concentrate is sold to Impala and KPM has no responsibility for the concentrate or contained metal after it has been received at the smelter.
- Payment is based upon agreed percentages of contained metals within the concentrate based on prevailing LME metal prices. A facility exists whereby a percentage of contained metal delivered can be paid in advance. Any prepayment is subject to commercial interest charges.

In addition, the Offtake Agreement includes the following clauses:

- Encouraging future co-operation between the parties that gives IRS the right of first refusal to negotiate on an exclusive basis to purchase the concentrate from any deposit that Aquarius or KPM have the rights to.
- IRS also has a pre-emptive right to make an offer to purchase the Kroondal Mine if any transaction has the effect of separating the Kroondal Mine from KPM.

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### 4.4.3 Impala Placement

Impala currently owns an approximate 9.8% interest in Aquarius. Impala's interest in Aquarius was acquired pursuant to a placement in May 1999 at A\$0.50 per share raising A\$1.86 million. The placement increased Impala's interest in Aquarius to 15% at that time. The funds raised were applied to exercise options over key landholdings incorporated in the Marikana Project.

### 4.4.4 The Impala Co-operation Agreement

On 8 February 2000, Aquarius and Impala entered into a non-binding co-operation agreement ("the Co-operation Agreement"). The key basis of which was that "the parties believe that they have the opportunity, capacity and capability of providing ongoing support and assistance for each other and can co-operate with each other to their mutual benefit for the purposes of exploiting such smaller platinum prospects."

The announcement made at the time of entering into the Co-operation Agreement highlighted the importance of the Impala relationship by virtue of the comment that the agreement "formalises the strong relationship that has developed between [Implats] and Aquarius over the last two and a half years".

Pursuant to the agreement Impala agreed to:

- facilitate opportunities to enable Aquarius to investigate and assess new PGM projects;
- include Aquarius, to the extent reasonable and possible in the circumstances, in certain PGM projects in the Bushveld Complex in South Africa in which Impala acquires an interest and in PGM projects outside South Africa in which Impala has been offered an opportunity of participation. More specifically projects with:
  - an optimum operating capacity of less than 1.5 million tonnes per annum.
  - a capital requirement of less than US\$80 million.
- subject to approval of shareholders of Aquarius, to:
  - allow Aquarius to acquire the property in South Africa known as Everest South, the consideration for which is to be determined by an independent valuation; and
  - take all reasonable steps to ensure the acquisition by Aquarius of other properties in South Africa of similar size to Everest South, the consideration for which is also to be determined by independent valuation.
- explore the possibility of advancing financial resources (at Aquarius' request) to Aquarius to assist with financing the drilling of, and full feasibility study for, the Marikana Project.

Aquarius agreed, to the extent reasonable and possible in the circumstances and subject, where necessary, to the approval of Aquarius shareholders, to:

- develop itself as a company which specialises in the mining of smaller PGM prospects, with a view to building up the level of its production of PGMs to approximately 500,000 ounces per annum over a three to five year period, dispose of its non-PGM related activities and not become involved in any non-PGM related activity.
- supply to Impala, on an exclusive basis and on fair and reasonable terms. Flotation concentrate from its platinum prospects under off-take, processing and marketing agreements;
- extend to Impala the opportunity to invest in Aquarius and in projects undertaken by Aquarius; and
- provide Impala with access to the global network that has been developed by Aquarius to assist Impala with the development of PGM projects throughout the world.

### 4.4.5 Acquisition of Everest and Chieftains Plain Projects

In July 2000 Aquarius through its subsidiary AQPSA, acquired the Everest South, Chieftains Plain and a portion of the Everest North areas. Aquarius acquired the above assets from Impala in exchange for a 25.5% equity in AQPSA. AQPSA owns the Marikana Project and prior to the acquisition, was a wholly owned subsidiary of Aquarius.

#### 4.4.6 The R568 million Investec Loan

On 20 December 2000 AQPSA entered a loan agreement with Investec for R504 million, which including capitalised interest increased to amount to approximately R568 million as at 31 March 2002 ("the R568 million Investec Loan"). The loan funds were applied to the consideration for the KPM Cash Bid. Under the terms of the coupled guarantee and cessation agreement between Impala and Investec, Impala provided a cash deposit to Investec of R561 million be set aside as security for the guarantee provided by Impala to Investec for the loan facility. Impala received 500,000 KPM shares from Aquarius as consideration for providing the guarantee.

The R568 million Investec Facility was provided to AQPSA on behalf of Aquarius with all costs of the loan and the loan repayments being met by Aquarius. It follows that the KPM shares purchased by AQPSA with the loan proceeds are held by AQPSA on behalf of Aquarius. This structure was implemented in order to comply with the relevant SARB requirements.

The key terms of the loan are summarised as follows:

Interest Charges JIBOR + 1%

Impala Underwriting and Indemnity Agreement 500,000 KPM Shares transferable to Impala

Repayment Date 31 December 2001 extended to 30 April 2002

Where the Aquarius Group is unable to repay the loan balance, the Company is entitled to repay all or any portion of the loan outstanding by issuing to Investec, subject to SARB approval, Aquarius shares at R32 per share. Alternatively and in the absence of SARB approval for application of Aquarius shares, KPM shares can be applied to the repayment of the loan at R32 per share. In the event that Aquarius elects to repay the loan with Aquarius or KPM script, pursuant to the guarantee and cessation agreement, Impala is required to repay the relevant amount in cash, with the Aquarius or KPM script provided to Invested being transferred to Impala.

Under the Underwriting and Indemnity Agreement forming part of the R568 million Investee Facility agreements, Aquarius has agreed to indemnify Impala against all actual or contingent losses, liabilities, damages, costs and expenses of any nature Impala may suffer or incur as a result of or connection with the guarantee and cessation agreement.

### 4.4.7 R124.8 million Working Capital Loan

On 14 February 2001, AQPSA entered into a loan agreement with Impala for R124.8 million for the purpose of funding the working capital requirements of AQPSA ("the R124.8 million WC Loan"). As noted above, AQPSA owns the Marikana, Everest and Chieftain Plains projects. As at the date of this report, the loan was fully drawn down.

The key terms of the loan are summarised as follows:

Interest Charges JIBOR + 3% payable quarterly in arrears

500,000 KPM Shares Impala Underwriting and Indemnity Agreement

19 August 2001 (being six months after the date of the Repayment Date

first drawdown). Repayment has now been extended to

30 April 2002.

Refer section below Conversion

Conversion

Under the terms of the R124.8 million WC Loan, Impala may convert the amount of the loan into shares of Aquarius. In order to do this, several conditions contained must be satisfied:

The conversion is subject approval by the members of Aquarius under the Conversion Conditions

> relevant listing requirements, the Bermuda Monetary Authority and each Governmental Agency in the Republic of South Africa having jurisdiction

over Impala.

Substitute Issuer If in substitution to Aquarius being the Issuer, AQPSA is the Issuer, then on

and from the Substitution Date AQPSA covenants and agrees to with Impala to observe, perform and fulfil all of Aquarius' obligations, Impala agrees to

accept AQPSA as the issuer of the Notes in substitution for Aquarius.

Effect of Conversion with Aquarius as the Issuer

On and with effect from the conversion date, Impala is deemed to have assigned and transferred to Aquarius all of Impala's rights in respect of the relevant conversion amount, the assigned debt shall be a debt due and owing

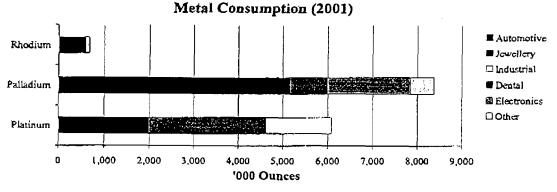
by AQPSA to Aquarius repayable on demand.

### 5. THE PLATINUM INDUSTRY

### 5.1 Platinum Industry Overview

The platinum industry involves the extraction and processing of several precious metals commonly referred to as the Platinum Group Metals ("PGM"). PGMs comprise six metal types being platinum, palladium, rhodium, iridium, ruthenium and osmium.

Unlike other precious metals, the major application of PGMs is in the manufacture of jewellery and motor vehicle catalytic converters. Other uses include industrial, dental and electrical purposes. Potential future applications for PGM include the production of fuel cells.



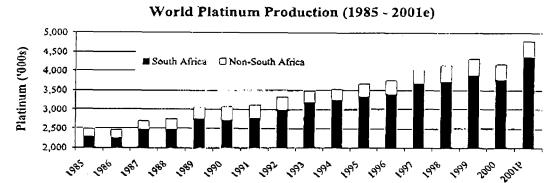
Source: CPM Group Platinum Group Metals Survey 2001

The risk of substitute products is of minor concern for the industry as the market expands. Uses for PGM are growing faster than substitutes are being found. Substitution is occurring for platinum in areas such as the production of autocatalysts. The substitution is occurring from another PGM element being palladium. Substitution away from PGMs is occurring in the dental industry while prices remain strong and cheaper alternatives exist. Alternative products, such as ceramics, are being used in areas such as electronics. Again this is due to the high price of PGM compared with the substitute product.

The majority of PGM is sold via long-term contracts. This results in the financial markets, not consumers, driving the price of PGM. Platinum prices are vulnerable due to the resumption of Russian exports. The long-term outlook for platinum is good however due to the prediction that the autocatalyst manufacturers will move back to platinum from palladium after 2003.

Approximately 85% of the world's primary PGM supply is located in the Bushveld Complex in South Africa. Other smaller suppliers of PGM include Russia with America producing a small quantity. These smaller suppliers generally produce PGM as a by-product from nickel mining.

Presented in the chart below is a summary of historical platinum production from 1985 to 2001e:

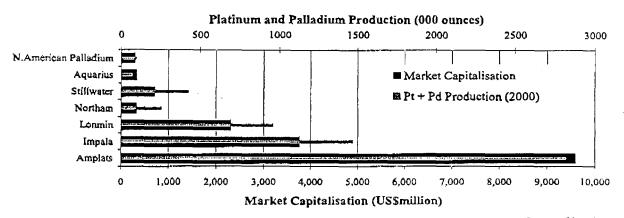


Source: CPM Group Platinum Group Metals Survey 2001

### 5.2 Platinum Producers

The majority of projects occur in South Africa, North America and Russia. Detailed below is a summary of several of the major companies within the industry.

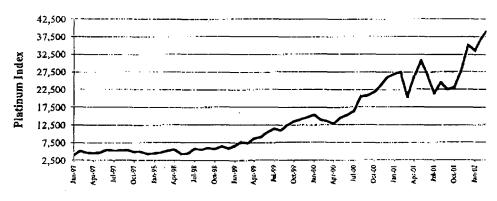
### Listed Platinum Companies - Market Capitalisation



Source: Bloomberg

The recent robust PGM prices have seen the JSE Platinum Index perform strongly. The chart below depicts the share price performance of platinum companies listed on the JSE:





Source: Bloomberg

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### Amplats

The largest producer of platinum in the world is Anglo American Platinum ("Amplats"). Amplats produced 1.87 million ounces of platinum in 2000. Amplats has three main mining divisions being Rustenburg Platinum Mines, Potgietersrust Platinums and Lebowa Platinum Mines. Amplats is also the largest producer of palladium in South Africa and the second largest in the world behind Norilsk Nickel. As a rhodium producer, Amplats is the largest producer in the world, producing 165,000 ounces in 2000.

### Impala

Impala is the second largest producer of platinum in South Africa despite having dropped its production levels to approximately I million ounces in 2000. Impala also produces a large amount of palladium. Production of palladium by Impala dropped 10.7% in 2000, however it plans to raise this level again through new projects. Impala produced approximately 139,000 ounces or rhodium in 2000.

#### Lonmin

Lonmin Platinum is another significant producer of PGMs. During 2000, it produced 660,000 ounces of platinum and refined 302,901 ounces in the 6 months to March 2001. During 2000, Lonmin Platinum went against industry trends and produced higher levels of palladium with 300,000 ounces. Lonmin Platinum plans to expand its operations over the coming years.

#### Northam

Northam is the fourth largest mining company in South Africa producing approximately 180,000 ounces of platinum in 2000 and around 80,000 ounces of palladium.

### Inco and Falconbridge

The majority of platinum production in Canada comes from Inco and Falconbridge's nickel and other mining operations as a by-product. Canada is the second largest platinum producing market economy.

#### Stillwater

In the United States, PGM production is dominated by Stillwater Mining, which accounts for almost 92% of the US platinum production. Stillwater Mining also produces palladium with expected production in 2001 to be 381,000 ounces.

#### North American Palladium Ltd

North Amercian Palladium Limited ("LAP") is the only producer of platinum of PGMs in Canada. LAP has recently completed a major mine expansion at its Lac des Iles operation situated 85 kilometres northwest of Thunder Bay, Ontario in Canada.

The Lac des Iles mine contains one of the largest bulk palladium reserves able to be mined through an open pit operation. The mine currently has palladium reserves of approximately 4.8 million ounces. This gives the mine an approximate life of 17 years.

#### Russia

Russia plays a major role in the supply and demand for PGM, with its supply of worldwide PGM being between 7% and 22%. The Norilsk Nickel mine accounts for more than 90% of Russian PGM mine production. Historically, the irregularity of Russian supply into the world market has caused high volatility of prices. For example, during 1999 virtually no exports of platinum or rhodium occurred. Palladium production from Russia during 2000 was estimated to be 3.3 million ounces with further increases expected during 2001. Platinum exports from Russia during 2000 were estimated at 300,000 ounces.

Certain analysts believe that the Russian supply problems may reflect difficulties at the Norilsk Nickel mine. Furthermore, State intervention can impact on supply as authorities exercise control over the extent of PGM production being retained for domestic use, for government stockpiles or for export.

Accurate information is difficult to obtain, as information regarding Russia's precious metal reserves is not made public. The supply difficulties have seen some PGM users entering into long-term supply contracts to guarantee supply.

#### 5.3 PGM Prices

PGM prices have performed strongly in recent years before falling sharply in recent months. Presented in the table below is a summary of platinum and palladium prices for the past 5 years.



Source: Reuters Beacon

Because the mining of and end use of platinum, palladium rhodium are often interconnected, their price movements are strongly correlated. It follows that rhodium achieved has achieved a high of US\$2,381 per ounce before falling back to current levels of approximately US\$940. Recent highs were firmly based on the fundamentals of the supply/demand balance. The strong growth in recent years has been driven by increased automotive demand reflecting the application of PGMs in motor vehicle catalytic converters. The momentum of additional speculative interest drove prices to a high in December/January 2001. Following the January 2001 highs, prices fell away strongly with increased concern over the global economic outlook. Despite a softer outlook for motor vehicle demand, the long-term outlook for automotive application remains positive with continued pressure to meet increasing environmental standards.

The projected PGM prices that we have adopted in the valuation of the KPM Net Assets are detailed in Appendix 1.

# 5.4 Mineral Investing in South Africa

#### Overview

South Africa is a country with an abundant supply of mineral resources, well-developed financial and legal system, modern infrastructure and a stock exchange that ranks among the 10 largest in the world. However, the country's growth has not been sufficient to reduce the 30% unemployment rate and the somewhat daunting economic problems that remain from the apartheid era.

South Africa's long-term economic outlook appears poor. Capital flight, the 'brain drain', the potential impact of HIV/AIDS, and low levels of investment are expected to continue to hinder growth and undermine economic stability for some years to come. The government's redistributive social policies may restrain the economy's competitiveness, further diminishing its growth potential.

## Mineral Industry

South Africa's mineral industry has operated for more than a century, with the primary focus being on gold, diamond, coal and platinum production. South Africa is recognised worldwide as leading and reliable supplier of high volume and quality minerals. South Africa is the world's leading producer of manganese ore, chrome ore, PGM, vanadium, alumino-silicates and gold. The change to the democratic system of government in South Africa has led to new government policy initiatives respect of the mineral industry.

On 19 September 2001, the Cabinet of the South African Government approved the Mineral and Petroleum Resources Development Bill ("the Bill"). The introduction of this contentious Bill will significantly alter the system currently in place. The main two objectives of the Bill is to expand opportunities for people who have been disadvantaged by unfair discrimination before the Constitution of the Republic of South Africa took effect in 1994 and to promote employment and advance the social and economic welfare of all South Africans. A key concept being promoted is "upliftment" as opposed to the "empowerment" which has historically provided black empowered companies with an interest in the undertakings. Upliftment refers to uplifting the surrounding communities surrounding the mineral interest.

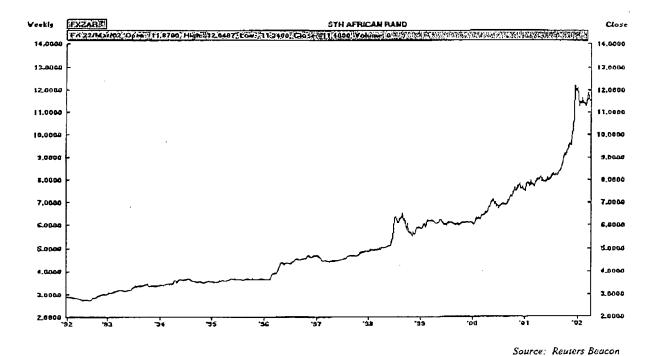
The effect of the Bill will be to transfer title to the mineral interest from private ownership to the state. In respect to new mining rights, the applicant will be required to submit a social plan demonstrating upliftment.

In respect of the transitional provisions, where the mineral interest was subject to a mining right, as is the case for KPM and Marikana, the Company must within two years apply for a mining right under the new Bill. In any event existing mining rights will apply for a period of no less than five years.

It has been proposed that the Bill will become law around mid 2002.

#### The South African Rand

Poor economic performance, rising racial polarization, political instability in the region and emerging-market jitters has negatively impacted on South Africa's currency. The Rand has depreciated significantly in the last decade, undergoing a sharp depreciation since 1996 and particularly in the 2001 calendar year. The chart below depicts the historical South African exchange rate to US dollar for the past 10 years:



Analysts expect the currency to remain volatile in the short run, influenced by capital movements, political turmoil, and regional and emerging-market instability, with the latter being the most likely driver behind currency volatility. In the longer term, economic analysts believe that the Rand will remain under pressure owing to the South African economy's poor competitiveness.

The project exchange rates adopted in the discounted cash flow are contained in Section 7.4 below.

#### 6. **BASIS OF ASSESSMENT**

The purpose of this report is to assess whether or not the Proposed Corporate Restructure is fair and reasonable to the non-associated shareholders of Aquarius. ASX Listing Rule 10.10 does not define the term 'fair and reasonable'. Guidance notes issued by the ASX during the early 1990's referred to 'fairness' relating to price and 'reasonableness' relating to factors other than price. While not having jurisdiction directly relevant to Listing Rule 10.1 or 10.10, in considering the concept of 'fair and reasonable', the Australian Securities and Investments Commission Policy Statement 74 "Acquisitions Agreed to by Shareholders" states that:

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"what is fair and reasonable for non-associated shareholders should be judged in all the circumstances of the proposal. The report must compare the likely advantages and disadvantages for the non-associated shareholders if the proposal is agreed to, with the advantages and disadvantages to those shareholders if it is not. Comparing the value of the shares to be acquired under the proposal and the value of the consideration is only one element of this assessment."

In the circumstances of the Proposed Corporate Restructure, the Proposed Corporate Restructure would be 'fair and reasonable' if the shareholders not associated with Impala are considered to be better off as a result of the transaction. The non-associated shareholders will be better off if the expected benefits of the Proposed Corporate Restructure outweigh the possible disadvantages. Accordingly, in our assessment of whether or not the Proposed Corporate Restructure is fair and reasonable we have considered the Proposed Corporate Restructure in its entirety, including such matters as:

- the rational for the Proposed Corporate Restructure;
- the assessed value of the KPM Net Assets;
- Aquarius' reduced relevant interest in KPM Net Assets as result of their sale to AQPSA;
- the value of the consideration received by Aquarius as compared to the value of Aquarius diluted relevant interest in the KPM Net Assets;
- the tax benefits and costs associated with the Proposed Corporate Restructure;
- the share trading history of Aquarius and KPM;
- the financial position of the Aquarius Group before and after the Proposed Transaction; and
- the alternatives to the Proposed Corporate Restructure and Aquarius Group's funding requirements; and
- other significant matters.

EYCF have commissioned Snowden Mining Industry Consultants Pty Ltd ("Snowden") as independent consultant to review and construct a discounted cash flow assessment for the relevant mineral assets of KPM.

In placing reliance on the report prepared by Snowden, we have satisfied ourselves as to Snowden's independence, competence and expertise. We are also satisfied that the assumptions, methodologies and source data used by Snowden are reasonable and appropriate and that the report contains sufficient information to support the conclusions drawn. The report has been prepared with due regard to the Code and Guidelines for Assessment and Valuation of Mineral Assets and Mineral Securities for Independent Expert Reports ("the VALMIN Code"). A copy of Snowden's report is attached in its entirety in Appendix 4.

In determining the value of the KPM Net Assets we have had regard to the market price of the KPM's shares up until the time of delisting and to the value of Aquarius' acquisition price for KPM.

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In evaluating the Proposed Corporate Restructure, we have also considered the likely advantages and disadvantages, if any, which may accrue to the non-associated shareholders if the Proposed Corporate Restructure is approved.

Our valuation of KPM is detailed in Appendix 1; the comparison of the value of the consideration received by Aquarius is considered in Section 7.2. Other significant factors relevant to the reasonableness of the Proposed Corporate Restructure are set out in Section 7.

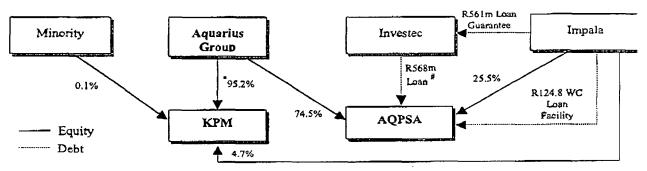
#### 7. ASSESSMENT OF THE PROPOSED CORPORATE RESTRUCTURE

#### 7.1 Short-Term Funding Requirements

From the commencement of the development of KPM in August 1998, Aquarius experienced considerable growth with its share market capitalisation increasing from around A\$10 million to approximately A\$640 million. Besides its interest in the Kroondal Project via KPM, the Company has secured significant growth opportunities with the acquisition of the Marikana, Everest and Chieftains Plain Projects. Historically, Aquarius has funded its operations through a combination of debt and equity. Amongst other factors, the Proposed Corporate Restructure has been brought about by the need for the Company to refinance its existing debt facilities and to provide sufficient financial capacity to pursue its growth opportunities, specifically the development of the Marikana Project.

### Current Financing Structure

Presented in the chart below is summary of Aquarius' current financing structure:



The R568 million Investee Loan to AQPSA has been made on behalf of Aquarius with all costs of the loan costs and loan repayments being met by Aquarius. It follows that the KPM shares purchased by AQPSA with the loan proceeds are held in trust by AQPSA for Aquarius (refer Section 4.4.6).

The estimated borrowings, including capitalised interest, of R693 million (US\$59.1 million at US\$1:R11.50) which comprises the R124.8 million WC Loan and R568 million Investec Loan facility are due and payable on 30 April 2002 with the due date having being extended previously. The key terms of the aforementioned loan facilities are summarised in Sections 4.4.6 and 4.4.7 of this report.

Presented in the table below is summary of the Aquarius Group's cash reserves as at 31 December 2001. We note that notwithstanding any remaining capital expenditure commitments for the development of the Marikana Project (estimated to be R471 million as at 31 December 2001), the Aquarius Group has insufficient cash reserves to meet the required loan repayments.

<sup>29%</sup> held by AQPSA on behalf of Aquarius (refer Section 4.4.6)

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	US\$ million	Rand million
Aquarius Platinum Ltd and Aquarius Platinum (Australia) Ltd	8.2	99
KPM	21.5	260
AQPSA	0.9	11
Total Cash on Hand as at 31 December 2001	30.6	370

#### Refinancing Capacity

As indicated above, neither Aquarius nor AQPSA have the necessary cash reserves or borrowing capacity to fund the loan repayments and to meet the projected capital expenditure commitments on Marikana. Aquarius' only current income producing asset, namely the Kroondal Project is held in a separate legal entity being KPM. Furthermore, KPM is not a wholly owned subsidiary of Aquarius with Impala and approximately 50 other minority shareholders having a 4.8% interest in KPM.

Whilst it is feasible for KPM to loan monies to other Aquarius Group companies, such loans would be difficult given the conflict of interest in respect of the minority shareholders. Alternatively, Aquarius could access KPM's cash flows to fund its commitments by way of dividends (net of 12.5% STC taxes). In any event, we note that KPM's projected short term cash flows are insufficient to meet the Group's immediate funding requirements.

Based on our discussions with Aquarius management and the review of various correspondence with third parties, it is evident that the Aquarius Group has encountered significant resistance from potential lenders for the refinancing of the existing debt and the provision of new debt which is required to complete the development of the Marikana Project. This concern relates primarily to the uncertainty over the level and timing of dividend payments from KPM and the ability to provide security over KPM's assets given the existence of minority shareholders. We understand that Aquarius' ability to remove the minority shareholders of KPM has been substantially restricted by South African regulatory requirements.

#### Conclusion

Under the Proposed Corporate Restructure, the Group's existing debt is to be restructured in a manner that provides Aquarius with the necessary funds to complete the development of Marikana and to continue the assessment of the Company's other projects. Without the Proposed Corporate Restructure the Company's ability to repay the existing debt and raise sufficient funds to complete the development of the Marikana Project is limited.

# 7.2 Comparison of KPM Value and Consideration Received

A key outcome of the Proposed Corporate Restructure is the dilution by 20.2% of Aquarius' interest in the KPM Net Assets. The effective consideration Aquarius is to receive for this is R360 million (20.2% of R1.773 billion).

In Appendix 1 we assessed the fair value of the KPM Net Assets to be in the range of between US\$190 million and US\$238 million. Pursuant to the Proposed Corporate Restructure, Aquarius Group's interest in KPM's Net Assets will be sold to AQPSA. As a result, Aquarius Group's interest in the KPM Net Assets will dilute from 95.2% to 75%.

Presented in the table below is a comparison of the fair market value of Aquarius' relevant interest in KPM's net assets and business undertakings before and after the Proposed Corporate Restructure:

	Section	High US\$ million	Low US\$ million •
Fair market value of KPM Fair market value of KPM (100%)	App 1	238	190
Value of Dilution in KPM by Aquarius Group (20.2%)	_	(48)	(38)
Estimated Value of Restructure Effective Consideration Received by Aquarius (R360m) Add Tax Benefits	3.1 7.6	*31 10	*31 10
Estimated Value Benefits from Proposed Corporate Restructure	_	11	41
Estimated Net Gain/(Loss) from Proposed Corporate Restructure	_	(7)	3

R360 million at an exchange Rate of US\$1:R11.50

Based on our analysis as contained in the above table, the net financial impact of the Proposed Corporate Restructure is between US\$(7) million and US\$3 million. Whilst the impact of the Proposed Corporate Restructure is estimated to be a small loss were we to exclusively adopt the high value for KPM, in our opinion, the valuation impact of the Proposed Corporate Restructure is considered to be value neutral on the basis that:

- for our assessed low value for KPM, the Proposed Corporate Restructure results in a small gain; and
- given the market capitalisation of Aquarius, and the magnitude and complexity of the Proposed Corporate Restructure, the net gain/(loss) is considered to be immaterial.

# 7.3 Intent to Convert R568 million Investec Facility to Aquarius or KPM Shares at R32

As detailed in Section 3.2, under the terms of the Proposed Corporate Restructure, the consideration receivable by Aquarius from AQPSA, as distributed by KPM, is to be set-off with the R568 million loans payable by Aquarius to AQPSA. Of the R568 million Investec Facility owed by AQPSA, R360 million is being acquired from Investec by Impala and the remaining R208 million is being refinanced into the new R390 million Investec Facility. The repayment terms of the R360 million loan and the R390 million Investec Facility are detailed in Section [3.2]. In essence, Aquarius is transferring part of its interest in the KPM Net Assets to Impala in exchange for the refinancing of its existing reduced loan liabilities.

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The conversion of the R568 million Investee Facility was contemplated in the original loan agreements where the loan would be converted to Aquarius or KPM shares at R32 per share were Aquarius was unable to repay the loan. The Aquarius or KPM shares were ultimately to go to Impala once Impala paid the loan amount in cash.

It is apparent that all parties entered into the R568 million Investec Facility, incorporating the convertibility to Aquarius of KPM shares at R32 per share, in good faith. In addition we note that the KPM Cash Bid for which Aquarius obtained the loans, was at R32 per KPM share. Furthermore, we note that:

- the devaluation of the Rand to the US dollar since the KPM Cash Bid was launched has resulted in a substantial increase in the value of KPM in Rand terms. The extent of this devaluation in the Rand was unlikely to have been contemplated at the time the loan was entered into. Under the terms of the Proposed Corporate Restructure, Aquarius will continue to forgo any valuation increment that may have arisen from this devaluation.
- in June 2001 KPM performed a return of capital of R6 per share reducing Aquarius' purchase cost from R32 to R26 per KPM share. In effect, the return of capital is a reduction in the value of KPM of R6 per share. This return of capital was not contemplated by the loan agreements and despite the valuation decrement; no adjustment was been made to conversion price pursuant to the R568 million Investec Facility and accordingly Aquarius has benefited by approximately R67 million in respect of the 20.2% dilution in the KPM Net Assets.

# 7.4 Aquarius has Benefited Significantly from the R568 million Investec Facility

In order to launch the KPM Cash Bid, under South African regulations Aquarius was required to demonstrate its capacity to fund the offer. The R568 million Investec Facility was used to substantially fund the acquisition of a further 50% interest in KPM at R32 per share. In our opinion, it was unlikely that Aquarius could have secured a loan for R568 million on similar favourable terms at that time with an alternative lender. The loan was secured by a R561 million guarantee provided by Impala to Investec. The guarantee was supported by a R561 million deposit Impala made with Investec.

Subsequent to the KPM Cash Bid, Northam publicly expressed an interest to acquire 100% of KPM. The support provided by Impala was an important factor in the success of Aquarius' bid for KPM.

Despite the effective consideration received being at a discount to our assessed value of the relevant 20.2% interest in the KPM Net Assets (refer Section 7.2), the benefits provided to Aquarius as a result of the loan have been considerable greater than the assessed discount:

- The 20.2% dilution in the KPM Net Assets represents an absolute 20.2% of the 50% interest in KPM that the Aquarius Group was able to secure with the assistance of Impala. Aquarius has benefited significantly as a result of the valuation increase in respect of the additional 30% in the KPM Net Assets that the Group acquired. These benefits will continue after the Proposed Corporate Restructure.
- Notwithstanding the capitalised interest, as a result of the devaluation of the South African Rand to the US dollar since the loan was drawn down, the loan in US dollar equivalent terms has fallen from US\$66.1 million to approximately US\$43.8 million. This represents an unrealised foreign currency gain of approximately of \$US\$22.3 million.

# 7.5 Comparison of AQPSA Value and Consideration Paid

As noted in Section 3, the Proposed Corporate Restructure will be performed in compliance with Section 39 of the South African Income Tax Act, such that the tax consequences for Aquarius are minimised. In order to satisfy the requirements of Section 39, Aquarius is required to hold a minimum 75% interest in AQPSA as compared to Aquarius' current 74.5 % interest.

Under the terms of the Proposed Corporate Restructure Impala has agreed to sell 0.5% of AQPSA to Aquarius for a cash amount of R338,181 (US\$0.03 million at US\$1:11.50). Given the immaterial size of this component of the Proposed Corporate Restructure, we have applied a broad indicative value for 0.5% of AQPSA in the range of US\$0.5 million and US\$1 million. Our assessed value of a 0.5% interest in AQPSA is between US\$0.47 million and US\$0.97 million above the consideration payable by Aquarius to Impala.

#### 7.6 Tax Costs and Benefits

The Proposed Corporate Restructure will be conducted in a manner consistent with Section 39 of the South African Income Tax Act, in order to keep any tax costs to a minimum. Subject to the necessary approval from the South African Revenue Services ("SARS"), Section 39 provides extensive tax relief for companies undergoing internal reorganisations. As at the date of this report, an application has been lodged with SARS. At the date of this report, the necessary approvals are pending.

Secondary Tax on Companies – the KPM Distribution of the Consideration Receivable from AQPSA

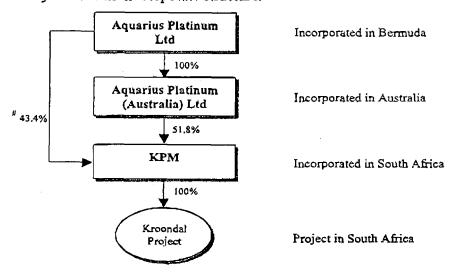
Pursuant to the Proposed Corporate Restructure, the consideration receivable by KPM from AQPSA for the sale of the KPM Net Assets will comprise a loan of R1.773 billion. The loan receivable from AQPSA will be distributed to KPM's shareholders, with the minority shareholders receiving a cash distribution. A detailed explanation of the Proposed Corporate Restructure is outlined in Section 3 of this report.

Pursuant to Section 39, Aquarius has applied to the SARS for Secondary Taxation of Companies ("STC") relief which would be payable on the distribution of the AQPSA loan receivable to Aquarius and Impala. STC is a 12.5% tax payable on dividend distributions by companies. The Proposed Corporate Restructure is conditional upon the approval of the application to SARS. Based on the preliminary response from SARS, the STC liability will be transferred to AQPSA however, payment of the liability will be deferred until AQPSA is liquidated. The estimated potential STC liability as at 31 December 2001 was R84 million (US\$7.3 million at US\$1:R11.50). In view of the extended deferral of the STC liability we have applied a nil value to the future liability.

In addition, as a consequence of the Proposed Corporate Restructure, AQPSA will have shareholder loans payable to Aquarius of approximately R1.120 billion. We have considered the value implications for tax purposes resulting from the establishment of the loans and have determined a discounted cash flow benefit brought about by the Proposed Corporate Restructure of approximately US\$10 million. This has been incorporated in our assessment of the financial impact of the Proposed Corporate Restructure included in Section 7.2.

#### Australian Taxation

The Proposed Corporate Restructure improves the Company's tax profile by removing Aquarius Platinum (Australia) Limited ("AQS") from the corporate structure. AQS, an Australian incorporated company is Aquarius' link with the Australian tax jurisdiction. Presented in the table below is a summary of the current corporate structure:



\* 29% hold by AQPSA on behalf of Aquarius

Dividends that might be paid to AQS by KPM can be passed through to Aquarius free of Australian tax including withholding tax (provided certain requirements are satisfied). This said, from a tax planning perspective, a structure involving an Australian company interposed between two foreign companies is perceived inherently inefficient.

For example, Australia's controlled foreign companies ("CFC") legislation can apply to attribute a proportionate share of certain income of a foreign company to an Australian shareholder, such as AQS, and tax it in Australia. In some cases involving non-arm's length dealings, income (eg, interest on a loan) may be imputed to the foreign subsidiary and attributed to the Australian entity.

Irrespective of whether income is imputed to the Australian entity for tax purposes, the ongoing ordinary compliance costs are multiplied due of Australia's reporting requirements. Furthermore, the complexity, particularly in respect of the CFC rules, of any potential future transactions dealing with KPM should not be understated. The Proposed Corporate Restructure, if fully implemented, would have the advantage of removing unnecessary Australian tax issues and associated costs.

#### 7.7 Financial Capacity to Develop Marikana

The Marikana Project and subsequently, the Everest South Project represent substantial identified short and medium term growth opportunities for the Company. The Marikana Project is currently under construction with production expected to commence in the first quarter of the 2003 calendar year. The Everest South Project is currently undergoing a feasibility study and subject to the outcome of the study, is projected to commence construction in the second half of the 2003 calendar year.

Significant projected capital expenditure is required to bring the Marikana, the Everest South Projects into production. The Proposed Corporate Restructure is projected to secure sufficient finance in order to complete the construction of the Marikana Project and bring the project into production.

We note that the proposed new loan facilities with Investec (refer Section 3.2) are insufficient to fund the development of the Everest South Project. However, in the event of the successful development of the Marikana Project and the accumulation of the projected positive net cash flows, Aquarius' future capacity to fund the development of the Everest South Project should improve materially.

# 7.8 Reduced Interest in the Kroondal Project

The Kroondal Project is Aquarius' only operating mine at this time. The details of the project are discussed in detail in Section 4.3 and in the Snowden report attached in Appendix 4. Prior to the listing of KPM on the JSE in August 1998, KPM was a wholly owned subsidiary of Aquarius. At that time the listing of KPM and consequential dilution of Aquarius's interest in KPM provided an effective financing option for the development of the Kroondal Project.

In December 2000, Aquarius launched the KPM Cash Bid to acquire the approximate 55% interest in KPM that the Company did not own. As a result of the bid and subsequent KPM share acquisitions, Aquarius' interest in KPM has increased to 95.2%. The underlying basis for the acquisition was:

- improved access to the strong positive cash flows being generated by KPM;
- consolidation of the corporate restructure;
- increased interest in platinum production with a view to achieving the Company's targeted 500,000+ annual PGM production;
- removal of minority interests in KPM; and
- earnings and value accretive.

Aquarius' stated core business activity is the development and management including ownership of platinum mining operations. Whilst the sale of KPM was contemplated within the R568 million Investee Facility agreements, the effective sale of a 20.2% relevant interest in KPM is in isolation, contrary to the Company's stated strategy.

#### 7.9 Acquisition of 0.5% Interest in AQPSA

As noted in Sections 3 and 7.6, the Proposed Corporate Restructure will be performed in compliance with Section 39 of the South African Income Tax Act, such that the tax consequences for Aquarius are minimised. In order to satisfy the requirements of Section 39, Aquarius is required to hold a minimum 75% interest in AQPSA as compared to Aquarius' current 74.5% interest in AQSA.

Under the terms of the Proposed Corporate Restructure Impala has agreed to sell 0.5% of AQPSA to Aquarius for a cash amount of R338,181.

The Marikana Project and subsequently, the Everest South Project represent substantial growth and shareholder value opportunities for the Company. Aquarius' stated strategy is to achieve annual PGM production of at least 500,000 ounces through the development of the Marikana and Everest South Projects.

Whilst small in quantum, the acquisition of a further 0.5% interest in AQPSA increases Aquarius interest in the Company's future growth opportunities. Furthermore, the acquisition is consistent with the Company's stated strategy.

## 7.10 Reduced Risk of Dilution of Interest in AQPSA

In February 2001, Aquarius and AQPSA entered into the R124.8 million WC Loan with Impala. The loan was obtained in order to fund the development of the Marikana Project. The terms of the agreement provided for the conversion of the loan into Aquarius shares at the election of Impala. In the event the relevant regulatory and shareholder approvals could not be obtained, the loan is alternatively convertible into AQPSA shares. The conversion terms are to be based on an independent expert valuation of Aquarius or AQPSA shares.

Notwithstanding the Proposed Corporate Restructure, we are not aware of Impala's previous intent as to the conversion of the R124.8 million WC Loan into Aquarius or AQPSA shares. From our review of various confidential documents and discussions with Aquarius management and its advisors, Impala has long held aspirations to increase its interest in Aquarius' platinum projects. On 18 March 1999, Impala acquired a significant interest in Aquarius pursuant to a placement. On 11 July 2001 Impala acquired a 25.5% interest in AQPSA as consideration for the sale of the Everest and Chieftains Plains Projects to AQPSA. At that time AQPSA owned only the Marikana Project.

Historically, Impala has had significant difficulties securing an increased interest in Aquarius due to the South African Reserve Bank's ("SARB") 'anti-looping' policy. This policy prevents South African companies purchasing shares in overseas' incorporated entities whose assets are predominantly located in South Africa. We understand that given AQPSA is a South African incorporated company; the relevant SARB approvals would not be required.

Presented in the table below is an illustrative summary of the potential interest that Impala could acquire in AQPSA for a range of values in the event the loan was converted into AQPSA shares:

		Impala's Interest in AQPSA			
AQPSA	<b>Value</b>		Conversion	Total Post	
US\$ million	R million "	Existing	of WC Facility	Conversion	
50	575	25.5%	21.7%	47.2%	
75	863	25.5%	14.4%	39.9%	
100	1,150	25.5%	10.8%	36.3%	
125	1,438	25.5%	8.7%	34.2%	
150	1,725	25.5%	7.2%	32.7%	
175	2,013	25.5%	6.2%	31.7%	
200	2,300	25.5%	5.4%	30.9%	
225	2,588	25.5%	4.8%	30.3%	
250	2,875	25.5%	4.3%	29.8%	

<sup>#</sup> US\$1:R11.50

As noted above the Marikana Project and subsequently, the Everest South Project represent substantial growth and shareholder value opportunities for the Company. In addition, Aquarius' stated strategy is to achieve annual PGM production of at least 500,000 ounces through the development of the Marikana and Everest South Projects.

Under the current terms of the R124.8 million WC Loan, Impala can at its absolute discretion convert the loan to Aquarius or AQPSA shares. In the event conversion was to AQPSA shares, Aquarius' interest in its immediate growth opportunities may be substantially reduced. Under the Proposed Corporate Restructure the R124.8 million WC Loan will be repaid negating the risk of any decrease in the Company's interest in AQPSA.

# 7.11 Certainty of Corporate Structure and Relationship with Impala

The current corporate structure of Aquarius is summarised in Sections 3.2 and 7.1. We note that the structure has been subject to some speculation by investors and analysts and in particular:

- the extent of the interest in KPM that Impala may acquire from Aquarius;
- the convertibility of the R124.8 million WC Loan into the shares of Aquarius or AQPSA;
  and
- the refinancing of the existing loans with Investee and Impala.

In addition to removing the ongoing uncertainty in respect of the above matters, the Proposed Corporate Restructure increases Impala's direct involvement in the operations whilst not effecting control of Aquarius. The investment community has perceived Impala's involvement with Aquarius as positive given their strong position in the platinum market and in particular:

- Impala's ability to source Aquarius with new platinum opportunities in South Africa. Examples of this have been the sale of the Everest and Chieftains Plain Projects by Impala to Aquarius. Further opportunities are projected to emerge as a result of the South African Government's proposed restructure of the mining sector.
- Providing access to Impala's refining facilities in South Africa. Currently, Impala takes all of the concentrate production from the Kroondal Project. Whilst no offtake agreements have been signed, it is generally expected that Impala with also take production from the Marikana and Everest Projects.
- Access to the significant financial resources of Impala. Since the Impala and Aquarius relationship was established Impala has provided the following financial assistance:
  - Impala took a placement in Aquarius shares for A\$1.86 million in May 1999. The
    placement proceeds were used to exercise an option to acquire the Marikana Project.
  - Impala provided R561 million cash security to Invested on behalf of Aquarius in respect of the R568 million Invested Facility. Aquarius applied the loan proceeds to substantially fund the KPM Cash Bid.
  - Impala provided AQPSA the R124.8 million WC Loan. Aquarius has applied the loan
    proceeds to fund the ongoing development of the Marikana and Everest South
    Projects.

In summary, the Proposed Corporate Restructure should reduce investor uncertainty over the Company's corporate structure and confirm the positive relationship with Impala. It follows that the Proposed Corporate Restructure may have a positive impact on investor sentiment towards the Company.

# 7.13 Alternatives Financing Options For the Aquarius Group

Take No Action

Section 7.1 outlines the Group's current financial structure together with its current debt and expenditure commitments. Based on this analysis, we note that the Group's current cash reserve is insufficient to meet the projected commitments. Whilst it is difficult to predict the precise outcome, in the event that Aquarius took no action:

- the Group's R568 million Investec Facility would be in default. The terms of the loan provide for the issue of Aquarius shares and failing that, the transfer of KPM shares at R32 per share respectively as consideration for the repayment of the loan.
  - Based on the current Aquarius share price of A\$8.97 on 23 March 2002 and an exchange rate of approximately A\$1:R6.00, this represents a discount of R21.76 per Aquarius share. In the unlikely event that the SARB authorised the issue of Aquarius shares to Impala, were the entire R568 million loan balance repaid with Aquarius shares, the total discount to the current share price would aggregate to approximately R386 million (US\$34 million at US\$1:R11.50).
  - Based on our valuation range of between R39.40 to R49.40 per KPM share (refer Appendix 1), were the entire R568 million loan balance repaid with KPM shares, the total discount to our assessed KPM share value would aggregate to approximately between R131 million and R309 million (US\$11.4 and US\$26.9 million at US\$1:R11.50).
- the Group's R124.8 million WC Loan would be in default. The terms of the loan provide for the issue of Aquarius shares and failing that, the issue of AQPSA shares. Whilst the issue price is to be based on a fair value as assessed by an independent expert, it conversion would result in a significant dilution in the Aquarius' interest in its growth opportunities.
- As minimum, the development of Marikana Project would be delayed until alternative finance could be secured. The Marikana Project is an integral to the Group's growth and accordingly, the failure to develop the project on a timely basis would likely have a material impact of Aquarius' value and share price.

#### Equity Raising by Aquarius

Aquarius is listed on the ASX and AIM and currently has a market capitalisation A\$650 million based on the share price of A\$8.95 on 23 March 2002. After giving effect to the R693 million required to repay the existing R568 million Investec and R124.8 million WC Loans and the unfunded Marikana Project development costs, the Company has estimated that it would require funding of approximately R750 million. We note that, after giving effect to the potential capital raising costs and a likely placement discount:

- A capital raising of this magnitude would represent approximately 20% of the Company's current issued capital.
- Whilst a capital raising of the quantum required may be successful, the outcome is not certain. In our opinion, the raising would likely be at significant discount and require a significant period to implement.
- Based on our indicative value analysis of an Aquarius share, the issue of an Aquarius share pursuant to a placement would result in a comparable value discount to the sale of an equivalent KPM share under the Proposed Corporate Restructure.

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### Debt Financing Capacity

As noted in Section 7.1 above, due to the minority interests in KPM, Aquarius' capacity to effectively access KPM's cash flows has been inhibited. This has led to potential lenders reducing the quantum of the facilities offered to the Group making this alternative unlikely at this time.

#### 8. SUMMARY AND CONCLUSION

In forming our opinion as to whether or not the Proposed Corporate Restructure is fair and reasonable to non-associated shareholders of Aquarius we have considered the following:

- under the Proposed Corporate Restructure, the Group's existing debt is to be restructured in a manner that provides Aquarius with the necessary funds to complete the development of Marikana and to continue the assessment of the Company's other projects. Without the Proposed Corporate Restructure the Company's ability to repay the existing debt and raise sufficient funds to complete the development of the Marikana Project is limited;
- excluding the tax efficiency benefits we have assessed the fair value of the 20.2% interest in the KPM Net Assets being diluted by Aquarius to be in the range of between US\$38 million to US\$48 million. We have assessed the fair value of the effective consideration being received by Aquarius for the dilution to be US\$31 million;
- we have estimated the tax efficiency benefits resulting from the Proposed Corporate Structure to be valued at approximately US\$10 million;
- based on our valuation analysis, the net financial impact of the Proposed Corporate Restructure including the tax benefits is estimated to be between US\$(7) million and US\$3 million. Whilst the impact of the Proposed Corporate Restructure is estimated to be a small loss were we to exclusively adopt the high value for KPM, in our opinion, the valuation impact of the Proposed Corporate Restructure is considered to be value neutral on the basis that:
  - for our assessed low value for KPM, the Proposed Corporate Restructure results in a small gain; and
  - given the market capitalisation of Aquarius, and the magnitude and complexity of the Proposed Corporate Restructure, the net gain/(loss) is considered to be immaterial.
- the conversion of the R568 million Investec Facility was contemplated in the original loan agreements where the loan would be converted to Aquarius or KPM shares at R32 per share where Aquarius was unable to repay the loan;
- the R568 million Investec Facility was originally used by Aquarius to make the KPM Cash Bid at R32 per KPM share. The significant increase in the value in KPM since then reflects the significant devaluation of the Rand subsequently, the extent of which was unlikely to have been contemplated at the time loan was entered into;
- after giving effect to the R6 per share capital return by KPM, the net cost of the KPM shares acquired pursuant to the KPM Cash Bid was R26. This return of capital was not contemplated by the loan agreements and despite the valuation decrement; no adjustment was made to the conversion price and accordingly Aquarius has benefited by approximately R67 million in respect of the 20,2% relevant interest;

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- in our opinion, it was unlikely that Aquarius could have secured a loan for R504 million on similar favourable terms at that time with an alternative lender to Investec. The loan provided Aquarius with the:
  - capacity to fund the KPM Cash Bid;
  - a significantly unreaslised gain as a result of the valuation increase in respect of the additional 30% in KPM that the Group will continue to retain;
  - a realised foreign currency gain of approximately of \$US\$22.3 million in US dollar terms in respect of the loan balance;
- the Proposed Corporate Restructure will be undertaken using Section 39 of the South African Income Tax Act, such that any tax costs are minimised. The Proposed Corporate Restructure is conditional upon the approval of the application to SARS;
- the Proposed Corporate Restructure, if fully implemented, would have the advantage of removing unnecessary Australian tax issues and associated costs;
- the Proposed Corporate Restructure is projected to secure sufficient finance in order to complete the development of the Marikana Project;
- as a result of the Proposed Corporate Restructure, the efficiency of the Group's corporate structure will improve substantially and in particular:
  - the minority shareholders in the net assets and undertakings of KPM will be removed;
  - the Group's capacity to raise debt finance will be substantially enhanced; and
  - cash flows generated by the Kroondal Project can be applied to new projects in a tax effective manner.
- whilst the issue of Aquarius or KPM shares was contemplated within the R568 million Investee Facility agreements, the dilution of a 20.2 % relevant interest in KPM by Aquarius is in isolation, contrary to the Company's core business and strategy;
- whilst small in quantum, the acquisition of a further 0.5% interest in AQPSA increases Aquarius interest in the Company's future growth opportunities and is consistent with the Company's current stated strategy. In addition, the acquisition costs is at a small discount to our indicative fair value assessment of AQPSA;
- under the current terms of the R124.8 million WC Loan, Impala can convert the loan to Aquarius or to AQPSA shares. In the event conversion was made into to AQPSA shares, Aquarius' interest in its immediate growth opportunities may be substantially reduced. Under the Proposed Corporate Restructure the R124.8 million WC Loan will be repaid negating the risk of any decrease in the Company's interest in AQPSA;
- the Proposed Corporate Restructure should reduce investor uncertainty over the Company's current corporate structure and confirms its positive relationship with Impala. It follows that the Proposed Corporate Restructure may have a positive impact on investor sentiment; and
- on balance, the alternatives to the Proposed Corporate Restructure do not appear to offer any materially superior alternative to the Group's short term funding requirements.

In having regards to the matters referred to above and the detailed discussion throughout this report, in our opinion, the Proposed Corporate Restructure is fair and reasonable to the non-associated shareholders of Aquarius.

Yours faithfully

Ken Pendergasy

Director

Michael Anghie

Director

#### **APPENDIX 1**

#### VALUATION OF KPM

#### 1. BASIS OF VALUATION

In our opinion, the most appropriate method of assessing the value of KPM is on a net asset backing basis after taking into account the underlying value of the assets and liabilities of the company as a going concern. This includes an assessment of the value of the Kroondal Project. The net asset backing method of valuation is appropriate when the entity being valued does not carry on any commercial trading activities, where the entity operates as an investment holding company or where the business operations being carried out incur losses or generates insufficient return on investment. Consideration of the Company's share trading history is contained in section 3.4 of this appendix.

#### 2. VALUATION OF KPM

Included below is a summary of KPM's net assets and liabilities as at 31 December 2001 and a proforma summary of our assessed valuation of the company's net assets and liabilities.

	Ref	Unaudited 31 December 2001 R million	Pro-forma High Value US\$ million	Pro-forma Low Value US\$ million
CURRENT ASSETS			(i)	(i)
Inventory	(ii)	14	•	-
Trade and Other Accounts Receivable		365	30	30
Amount owing by associated company		4	-	-
Cash and Cash Equivalents		261	22	22
		644	52	52
NON-CURRENT ASSETS				
Kroondal Project	(iii)	464	209	161
Environmental Rehabilitation Trust		2	<del>-</del>	
		466	209	161
TOTAL ASSETS		1,110	261	213
NON-CURRENT LIABILITIES				
Provision for Closure Costs	(ii)	7	-	-
Deferred Taxation	(iv)	116		-
		123		-
CURRENT LIABILITIES				
Trade and Other Payables		49	4	4
Amount owing to Aquarius		14	1	1
Short term pipeline funding		134	11	11
SARS: normal tax provision		88	7	7
		285	23	23
TOTAL LIABILITIES		408	23	. 23
NET ASSETS		702	238	190

<sup>(</sup>i) Exchange rate as at 31 December 2001 of US\$1:R12.11.

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- (ii) Inventory is an asset integral to the ongoing operations of the project and accordingly its value is already reflected in our valuation of the Kroondal Project.
- (iii) Valuation of the Kroondal Project of between US\$161 million and US\$209 million (refer Section 3).
- (iii) Non-cash liability.

Based on the above analysis, KPM's Net Assets are valued in range of US\$190 million to US\$238 million. Based on the 55.4 million KPM shares on issue and an exchange rate of US\$1:R11.50 this equates to a value range of between R39.40 to R49.40 per share.

Our valuation approach and methodology is discussed in the sections below.

#### 3. VALUATION OF THE KROONDAL PROJECT

### 3.1 Valuation Approach

For the purpose of this report EYCF has valued 100% of the shares of KPM on a fair market value basis. The definition of "fair market value" is generally accepted as the price that a willing but not anxious buyer, acting at arm's length, with adequate information, would be prepared to pay, and a willing but not anxious seller would be prepared to accept.

In our opinion, the most appropriate method of assessing the value of KPM is on a net asset backing basis after taking into account the underlying fair market value of the assets and liabilities of KPM.

For the purpose of assessing the fair market value of KPM's mineral interests, being the Kroondal Project, we have engaged Snowden. In placing reliance on the report prepared by Snowden we have satisfied ourselves as to Snowden's competence and expertise. We are also satisfied that the assumptions, methodologies and source data used by Snowden are reasonable and appropriate and that the report contains sufficient information to support the conclusions drawn. Snowden's report has been prepared with due regard to the Code and Guidelines for Technical Assessment and/or Valuation of Mineral Assets and Mineral and Petroleum Assets and Mineral and Petroleum Securities for Independent Expert Reports which was issued by the Australasian Institute of Mining and Metallurgy. A copy of Snowden's report is attached in its entirety in Appendix 4.

#### Snowden's report comprises:

- 1. Introduction
- 2. Resource Estimates
- 3. Reserve Estimates
- 4. Mining
- 5. Metallurgical Processing
- 6. Mine Infrastructure
- 7. Safety
- 8. Environmental Issues and Permits
- 9. Mine Cash Flows

In their report, Snowden have constructed a detailed financial model for the life of mine reserves of the Kroondal Project. Using the discounted cash flow approach, being most commonly adopted for the valuation of mining companies, we have assessed the value of the Kroondal Project to be in the range of between US\$166 million and US\$209 million. Discount rates, metal prices and foreign currency rates used in the discounted cash flow are considered in Section 3.4 below and Appendix 1.

# 3.2 Valuation Methodology Applied to the Kroondal Project

In the absence of direct market evidence of value, estimates of value are made using methodologies that typically infer value from other available evidence including arms length transactions involving comparable assets. There are five primary methodologies commonly considered in valuing assets:

- capitalisation of earnings or cash flow;
- discounting projected cash flows;
- industry rules of thumb;
- acquisition cost; and
- sharemarket capitalisation.

Each of these valuation methodologies has application in different circumstances.

Capitalisation of earnings is the most commonly used method for valuation of industrial companies. It is most appropriate for industrial companies with a long operating history and a consistent earnings trend which is sufficiently stable to be indicative of ongoing earnings potential. This method is not suitable for startup a business or businesses with an erratic earnings pattern. Neither is it particularly suitable for businesses which have lumpy capital expenditure requirements such as resource developments.

Discounted cash flow valuations involve calculating the net present value of projected cash flows. The cash flows are discounted using a discount rate which reflects the risk associated with the cash flow stream. Discounting of projected cash flows has a strong theoretical basis and is the most commonly used method of valuation of mining companies, startup projects, limited life projects and businesses with lumpy capital expenditure requirements.

Industry rules of thumb are commonly used in some industries. These are generally used as a secondary valuation method as a check on the result determined by a capitalised earnings valuation or by discounting cash flows.

Reference to a company's acquisition cost for an asset is normally only made as a primary valuation methodology in instances where there are significant non-income generating assets or where the returns being generated by the assets employed are considered inadequate. Consideration of the acquisition cost is often however of relevance as a secondary "reasonableness" valuation test when assessing the additional value that has been added to a project through post acquisition project related expenditure or other developments such as changes in commodity prices.

The share market can provide a persuasive estimate as to the fair value of a company's shares. However in general, the market price of the company's shares reflects the buying and selling of small parcels which do not carry a controlling interest and are usually traded on a short to medium term investment basis and may not therefore account for the additional value which may arise where a controlling interest is acquired.

In valuing the Kroondal Project we have used discounted cash flows as our primary method. The discounted cash flow method is most commonly used for valuing resource assets given their finite life and "lumpy" capital requirements. As a secondary "reasonableness" valuation test we have considered recent transactions in KPM shares including the Aquarius' Cash Bid for KPM, and we have also considered industry rules of thumb, Aquarius market capitalisation and comparable companies.

### 3.3 Discount Rate and Projected Metal Prices and Currency Exchange Rates

Snowden have constructed a detailed financial model for the life of mine reserves of the Kroondal Project for the purposes of calculating the discounted cash flow for the project. In determining the discounted cash flows we have instructed Snowden to adopt the following assumptions in respect of discount rates, metal prices and currency exchange rates.

#### Discount Rate

In calculated the discounted cash flow we have used a real after tax discount rate of between 10.3% and 12.2%. The determination of the discount rate is contained in Appendix 2.

## Projected Metal Prices

In determining the projected metal prices we have considered the current spot prices, a number of analyst reports and consensus estimates. A discussion of historical metal prices is contained in Section 5.

Presented in the table below is a summary of the current metal prices together with the projected prices applied in our valuation of the PGM operations:

			Projections		
			Year	ended	Long
Product		Spot Price	30 June 2002	30 June 2003	Term
Platinum	US\$/ounce	515	495	449	444
Palladium	US\$/ounce	370	360-492	350-577	350-453
Rhodium	US\$/ounce	920	800-1,073	600-1,121	600-756
Gold	US\$/ounce	300	287	294	272

The prices projections for nickel and copper are based upon current spot prices. The price projections for chrome are based upon KPM's fixed price contract.

We note a wide disparity in the outlook for palladium and rhodium prices and according we have adopted a high and low palladium and rhodium metal price for our respective high and low valuation. Prices beyond 2004 are inflated at 2% per annum based on the 2004 projected metal prices.

A summary of the impact of different metal prices on the valuation is contained in Snowden's report contained in Appendix 4.

#### Projected Currency Exchange Rates

Presented in the table below are the projected USD/Rand currency exchange rates applied in our valuation. The projection is based on the forward exchange rate as implied by the interest rate parity between the South African Rand and United States Dollar.

Period	US\$1/Rand
3 Months	11.64
6 Months	11.89
1 Year	12.39
2 Years	12.39
3 Years	14.08
4 Years	14.85
5 Years	15.67
6 Years	16.63
7 Years	17.62
8 Years	18.63
9 Years	19.67
10 Years	20.66

### South African Inflation

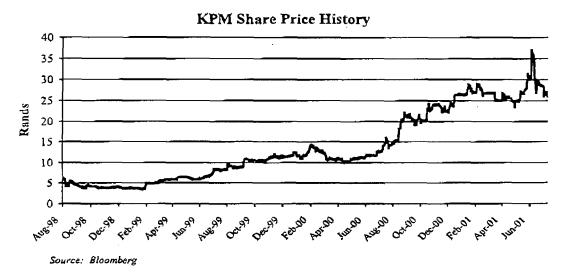
During the 1980's and early 1990's South African experienced high levels of inflation. However, in recent years tight economic policies have seen a long-term decline in the inflation rate. Despite the marked recent current devaluation, it appears that the SARB will maintain is tight economic policies. Presented in the table below is a summary historical inflation rates in South Africa.

	1997	1998	1999	2000	2001
Consumer Prices	8.5	7.0	5.1	5.4	5.7

In determining our cash flows we have applied a long-term projected inflation rate of 6% per annum.

#### 3.5 KPM Share Price

The share price history commences with KPM's initial listing on the JSE in August 1998 and terminates in August 2001 with KPM's delisting following Aquarius' recent take over offer. The chart below summarises the trading history of KPM's shares on the JSE:



#### **APPENDIX 2**

#### SELECTION OF DISCOUNT RATE

#### 1. SUMMARY AND CONCLUSION

We have selected an appropriate real post-tax discount rate, being the weighted average cost of capital ("WACC"), for use in the discounted cash flow valuation of the Kroondal Project.

The selection of a suitable discount rate is subjective and should reflect the risks attached to the assets being valued. In forming our opinion, we have had regard to our discussions with Snowden and WACC theory. A detailed discussion of the risks attached to the Kroondal Project is included in the Snowden report attached in Appendix 4. The WACC calculation is outlined below.

#### 2. WEIGHTED AVERAGE COST OF CAPITAL

# 2.1 Summary and Conclusion

The WACC comprises the costs of the various sources of capital for a company. Each source is weighted to reflect its contribution and tax implications. A typical before debt after tax WACC formula is as follows:

WACC	=	$K_d$ (1-t) x (D/(	$(D+E)$ ) + $K_c \times (E/(D+E))$
	<b>#</b>	9.3% to 10.2%	nominal after tax
	=	7.2% to 8% re	al after tax
K. K.₁	=	10.7% to 11.9%	Cost of equity
K <sub>d</sub>	=	5.0%	Cost of debt
t	= ,	30%	Corporate tax rate (refer Section 2.3 below)
D/(D+E)	<u> </u>	20%	Proportion of capital funded comprising debt
E/(D+E)	=	80%	Proportion of capital funded comprising equity

The WACC represents the rate of return that would be required by a capital provider or investor as compensation for the risks attached to the cash flow.

Given the sovereign risk attached to South Africa, in our opinion, a 1% to 2% premium is required to be added to the WACC. In conclusion, our adopted nominal after tax discount rate is in the range 10.3% to 12.2%.

#### 2.2 **Cost Of Equity**

In determining the discount rate we have had regard to the cost of equity, using the Capital Asset Pricing Model ("CAPM") as our principal methodology.

The CAPM states that the return required by equity holders is the risk-free rate plus a risk premium associated with non-diversible risk, as measured by the relationship between a securities volatility of returns with that of the market portfolio. The formula for deriving the cost of equity is as follows:

$$K_e = R_f + \beta_e (R_m - R_f)$$
Where:

After tax cost of equity Risk free rate Equity Beta
Expected market return
market risk premium

market risk premium

Whilst the theoretical foundation for estimating the cost of equity is rigorous, the application of the theory is not straightforward. A large degree of subjectivity is involved in estimating the inputs to the formula. These limitations mean that any estimate of the cost of equity must necessarily be regarded as indicative rather than a firm and precise measure. Furthermore, because of the cost of equity is a market-determined measure, changes in market conditions will effect its calculations.

#### Risk-Free Rate

The relevant risk-free rate of return is the return on a risk-free security, typically for a long-term period. In practice, long-dated government bonds are an acceptable benchmark for the risk-free securities. The yield to maturity on the longest dated capital Commonwealth bond is generally accepted as being the most appropriate proxy for the risk-free rate. The current yield on a 10-year Commonwealth bond is approximately 5.9 % in Australia. The risk-free rate used for the United Kingdom is 4.7%.

#### Market Risk Premium

Market risk premium represents the premium return that investors require to invest in listed equity securities. Historical studies by various academics, undertaken prior to the introduction of dividend imputation, have indicated that the long run average premium is in the vicinity of 6% to 8%. In the 1993 paper, Professor Robert Officer of the Melbourne Graduate School of Management ("AGSM"), has calculated that, in the period since 1995, the average market risk premium in Australia has been approximately 6.6%. However, there is growing support for the view that the market-risk premium in the current environment is somewhat lower. On this basis and generally consistent with current practice we have adopted a market risk premium of 6.0%.

#### Equity Beta

The equity beta is a measure of volatility of the return generated by an investment relative to the market as a whole. The overall market return is generally represented by a return on a market index such as the All Ordinaries Index. The market portfolio has a beta of 1.0, therefore, a company with a beta of 1.0 is more risky than the market and vice versa.

Listed companies with a comparable risk profile provide a useful means of estimating equity betas for a particular company. The estimation of betas by this method is limited by the lack of similar publicly-traded entities and the fact that the businesses and financial risks associated with these comparable companies may vary from the risks associated with the company under consideration.

Such risks are referred to as systematic, undiversifiable or uninsurable risks. The concept of beta is central of the CAPM given that beta risk is the only risk that is priced into investor required rates of return. In addition, beta estimates are based on historical information and may reflect factors which have affected share price volatility in the past which may not necessarily be relevant to the future or specifically relevant to the business being concerned.

The table below shows the betas and gearing levels for a selected number of nickel producers. We have de-levered these betas to determine the underlying asset beta. An asset beta removes the impact of each company's gearing level and re-levered them based on target gearing levels. The formula we have adopted to re-gear betas is stated below:

$\beta_e$	$=\beta_a$	$(1((D/E)(1-t_c)))$
Where:		
K.	=	After tax cost of equity
$R_f$	=	Risk free rate
βα	=	Equity Beta
β <sub>a</sub> D	=	Asset Beta
D	=	market value of debt
E	=	market value of equity
t	=	corporate tax rate

The gearing levels are based on the currently available Bloomberg data at the time the betas were calculated. The betas have been calculated using the relevant home exchange for each company:

	Market Capitalisation (US\$ million)	Equity Beta Bloomberg	Gearing (%) D/(D+E)	Asset Beta Bloomberg
Aquarius Platinum Limited (AIM)	338	1.14	12.3%	1.04
Aquarius Platinum Limited (ASX)	338	0.90	12.3%	0.82
Impala Platinum Holdings Ltd	3,762	1.30	"(8)%	1.30
Anglo American Platinum Corp	9,595	1.36	*(7.8)%	1.36
Lonmin	2,309	0.91	#(29.2)%	0.91
Stillwater	718	0.72	16.4%	0.64
North American Palladium	297	1.05	21.8%	0.89
Simple Average		0.84	4%	0.98
Median		0.85	12%	0.91

Source: Bloomberg., company annual reports, company interim results

Wil gearing applied in asset beta calculation.

82-50c 7

Based on the above observation of betas, we have adopted an asset beta of 0.9 for KPM. In addition, we have adopted a gearing level of 20%. Given this, we have derived an equity beta of 1.0 for KPM. In determining an appropriate beta, in addition to the above, we have considered the following factors relative to its peers:

- the Company's financial position;
- the Company's operating performance;
- the prospects for the Company in the short to medium term;
- the significantly lower betas calculated for Impala and Anglo American Platinum where the S&P 500 is adopted as a comparison;
- The inconsistency between the higher betas and low perceived lower risk profiles of Impala and Anglo American Platinum; and
- The actual calculated betas for Aquarius.

# Dividend Imputation

KPM is domiciled in South Africa and given that South Africa currently has no dividend imputation regime, no adjustment is required.

## Cost Of Equity Calculation

Presented in the table below is our cost of equity estimates (nominal) based on the assumptions and inputs discussed above:

K <sub>c (Real)</sub>	Real After tax cost of equity	8.5% to 9.7%
Ke (Nominal)	Nominal After tax cost of equity	10.7% to 11.9%
$R_f$	Risk free rate	4.7% to 5.9%
β	Equity Beta	1.0
$(R_m - R_f)$	market risk premium	6%

As set out above, we have calculated an appropriate real cost of equity discount rate for KPM in the range of approximately 8.5 % to 9.7%. In our opinion, this is an appropriate real after-tax equity discount rate to be used to provide indicative value for the project post funding however pre-construction.

#### 2.3 Cost of Debt

In determining an appropriate cost of debt we have reviewed it recent offers to Aquarius from potential financiers. Based on this review, we concluded that an appropriate US dollar denominated cost of debt is 5%. The interest charged on debt is tax deductible and accordingly the cost of debt is generally calculated using the formula:

(1 - Corporate Tax Rate) x (Average cost of Debt)

#### 2.4 Inflation

We have adjusted our nominal after tax discount rate to a real after tax discount rate using the Fischer Equation:

We have applied a projected long term US Dollar inflation rate of 2% per annum.

# 2.5 Sovereign Risk

We have applied a 1% to 2% premium to our WACC to reflect the sovereign risk attached to South Africa. In determining the risk adjustment we have considered the sovereign risk ratings published by credible ratings agencies and the yields offered by similarly rated interest-bearing marketable securities.

#### APPENDIX 3

### SOURCES OF INFORMATION AND DECLARATIONS

# 1. SOURCES OF INFORMATION

In preparing this report we have relied upon the following principal sources of information:

- the Annual Report of Aquarius for the year ended 30 June 2001;
- the half yearly report of Aquarius for the year ended 30 June 2001;
- management reports for Aquarius for the months ending 31 July 2001 and 31 December 2001;
- the report of the KPM Mineral Assets Prepared by Snowden;
- the legal documentation and agreements prepared by Aquarius's legal representative pursuant to the Proposed Corporate Restructure;
- share market data on the trading of Aquarius and KPM shares;
- announcements made by Aquarius and lodged with the ASX;
- industry data published by CPM Group;
- discussions and correspondence with the management of Aquarius; and
- various publicly available information.

#### 2. DECLARATIONS

This report has been prepared for the purpose outlined in section 1 of this report and has been prepared specifically for the non-associated shareholders of Aquarius. It is not intended that this report be used for any purpose other than to accompany the Notice of Meeting and Explanatory Notes to be distributed to Aquarius shareholders for the Meeting.

Neither EYCF, Ernst & Young, nor any member or employee thereof, accepts responsibility to any person, other than the non-associated shareholders of Aquarius, in respect of this report, including any errors or omissions however caused. EYCF is a company owned by Ernst & Young providing corporate finance advice in respect of mergers and acquisitions, capital raisings and corporate reconstructions. EYCF holds a Dealers Licence under the Corporations Act and its authorised representatives are qualified to provide the assessment contained in this report.

EYCF will receive a fixed fee for the preparation of this report. This fee is not contingent on the outcome of the Proposed Corporate Restructure. EYCF will not receive any other benefit for the preparation of this report nor does EYCF have any pecuniary or other interests that could reasonably be regarded as being capable of affecting its ability to provide an unbiased opinion in respect of the Proposed Corporate Restructure.

In completing the report EYCF had discussions with, and provided advance drafts of this report to, the directors and management of Aquarius. These discussions were in regards to matters of fact, as distinct from the methodologies applied in the completion of our report and the opinions contained therein.

The statements contained in this report are given in good faith and in the belief that such statements and opinions are not false or misleading. In preparation of this report we have relied upon information believed, after due enquiry, to be reliable and accurate. We have no reason to believe that any information supplied to us was false or that any material information has been withheld from us. We do not imply, nor should it be construed that we have verified any of the information provided to us, or that our enquiries could have verified any matter which a more extensive examination might disclose. We have however evaluated the information provided to us by Aquarius as well as other parties through enquiry, analysis and review and nothing came to our attention to indicate the information provided was materially mis-stated or would not afford reasonable grounds upon which to base our report.

Mr Ken Pendergast and Mr Michael Anghie have assumed overall responsibility for this report. Mr Pendergast and Mr Anghie are directors of EYCF and partners of Ernst & Young. Both have the professional qualifications and experience appropriate to the advice being offered. Other EYCF staff have been consulted in the preparation of this report where appropriate.



# **FACSIMILE TRANSMISSION**

Date:

9 April 2002

To:

Office of International Corporation Finance

Company:

Securities and Exchange Commission

Fax:

0011 1 202 942 9624

From:

Melissa Sturgess

Number of Pages:

42

(Including this cover page)

Re:

Aquarius Platinum Limited - File # 82-5097

Part Three

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(incorporated in Bermuda – Registration No: EC26290)

CLARENDON HOUSE, 2 CHURCH STREET, HAMILTON
PO BOX HM666, HAMILTON HMCX, BERMUDA

EMAIL: info@aquariusplatinum.com WEB SITE: www.aquariusplatinum.com



19 March 2002

Securities and Exchange Commission Division of Corporate Finance Office of International Corporation Finance 450 Fifth Street, N.W. Washington, D.C. 20549

Re: Aquarius Platinum Limited - File # 82-5097

Dear Ladies and Gentlemen.

We are furnishing herewith pursuant to Rule 12g3-2(b)(1)(i) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") the following additional documents that the Aquarius Platinum Limited (the "Company") has made public, distributed or filed with the Australian Stock Exchange Limited (the "ASX") the Australian Securities and Investments Commission (the "ASIC") the Alternative Investment Market ("AIM") of the London Stock Exchange ("LSE") or the Registrar of Companies of Bermuda since 4 May 2001.

AQP93 9 April 2002 ASX & LSE Announcement Notice of Meeting and Explanatory Memorandum

The attached documents are being furnished with the understanding that they will not be deemed "filed" with the Securities and Exchange Commission or otherwise subject to the liabilities of Section 18 of the Exchange Act, and that neither this letter nor the furnishing of such documents shall constitute an admission for any purpose that the Company is subject to the Exchange Act.

If you have any questions or comments please call the undersigned at +618 9485 2111.

Very truly yours

**AQUARIUS PLATINUM LIMTTED** 

**MELISSA STURGESS** 

(incorporated in Bermuda – Registration No: EC26290)

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# **APPENDIX 4**

REPORT ON THE KPM MINERAL INTERESTS

 $\mathbf{BY}$ 

SNOWDEN MINING CONSULTANTS PTY LTD

25-205+



87 Colin Street, West Perth, WA 6005 PO Box 77, West Perth, WA 6872 Tel: (61 8) 9481 6690 Fax: (61 8) 9322 2576 E-mail: snowden@snowdenau.com http://www.snowdenau.com

Perth, Kalgoorlie, Brisbane, Vancouver, Johannesburg

27 March 2002

The Directors
Ernst & Young Corporate Finance Pty Ltd
Central Park
152 St Georges Tce
PERTH WA 6000

Dear Sirs

# Independent Technical Report and Valuation on the Kroondal Platinum Mine

At your request (letter dated 5 November, 2001), Snowden Mining Industry Consultants Pty Ltd (Snowden) has prepared an Independent Technical Report and Valuation on the Kroondal Platinum Mine (KPM).

It is our understanding that the purpose of the report is to provide a technical appraisal and valuation analysis of the mining and exploration assets of KPM. We understand that this report will be included in an Independent Experts Report by Ernst & Young Corporate Finance Pty Ltd regarding a proposed corporate restructure by Aquarius Platinum Ltd (Aquarius) with Impala Platinum Holdings Limited for the partial repayment of a loan facility with Investec.

The findings presented in this report are based on carefully scrutinised information provided by Aquarius and from a site visit to KPM by Snowden personnel and sub-consultants assigned to this appraisal. Snowden has held detailed discussions with Aquarius's management and senior mine personnel and has specifically reviewed KPM's life-of-mine production plan, mineral resources, ore reserves, mine infrastructure, environmental compliance, safety practices and conformity with other statutory obligations.

A draft version of this report was provided to the directors and management of Aquarius for comment in respect of omission or error in fact. Aquarius also warrants that all material information in its possession has been fully disclosed to Snowden.

KPM is located approximately 15 km to the southeast of Rustenburg in the Northwest Province of South Africa over a portion of the Western Lobe of the Bushveld Igneous Complex. The mine, which was commissioned in August 1999 and is now in full production, was established to mine the Leader and Main chromitite seams in the UG2 reef for their high platinum group element (PGE) contents. The three most important PGE's present in the chromitite seams are platinum, palladium and rhodium.

Overall opinion. Snowden estimates that KPM's net present value (NPV) at a nominal after tax discount rate in the range of 10,3% to 12.2% to be as follows:

	Average 4E Basket Price (US\$/oz)		
Discount Rate	518	455	
10.3%	US\$209.0M	US\$171.2M	
11.2%	US\$197.6M	US\$161.7M	

The cash flow is based on discount rate and metal price assumptions provided to Snowden by Ernst & Young Corporate Finance as the Independent Expert.

KPM's life-of-mine operating and capital cost (nominal), including penalties associated with the concentrate off-take agreement, is estimated at *US\$200* per ounce 4E (platinum + palladium + rhodium + gold). KPM receives approximately 82% of the value of contained metal in concentrate which over the life-of-mine equates to about 82% of the average 4E basket price.

In Snowden's opinion KPM is a well conceived, well managed mining operation that relies upon a blend of traditional mining and processing technology and innovative management, mining and processing practices which have led it to be one of the stand-out performers among South Africa's platinum mines since it commenced operations in 1999.

The mine is a comparatively low risk operation that should be able to achieve its budgeted targets each year. Perhaps the two greatest risks to the operation would be if poor mining practice was to go unchecked (this is unlikely to occur) and, secondly, if there is significantly more geological disruption of the reef due to potholing than has been allowed for in the ore reserve based on the available drilling. We do not expect the frequency of potholing to exceed that encountered in the mines so far but the possibility is there for an increased frequency in areas where drillholes are relatively widely spaced.

Upon completion of mining in 2010 KPM's mineral resources will be fully exhausted and there is no exploration potential for further PGE mineralisation within the extent of their current mineral rights.

KPM's mineral assets. KPM's mineral assets are located in two separate blocks of ground known as the Kroondal Block and, to its west, the Waterval Block. KPM is currently only mining the UG2 reef in the Kroondal Block and anticipates commencing production from the Waterval Block in 2005. It is noteworthy that the Waterval Block could be disposed of to Anglo Platinum (who holds the immediately adjacent ground) in exchange for UG2 reef down-dip from the Kroondal Block. This arrangement would confirm KPM's Kroondal Block operation through to 2009.

Resource estimates. KPM reported its chromitite seam resource at the end of June 2001 to be as follows:

KPM Resources	June 2001	
Area	Mt	4E g/t
Kroondal Block (depleted for mining)	17.22	5.30
Waterval Block	4.41	5.02
Total Resource	21.63	5.24

Ore reserve estimates. Snowden has estimated that KPM's ROM reserve (run-of-mine ore delivered to the crusher) as at June 2001 is 25.1 Mt at 2.89 g/t 4E (2.3 M ounces PGE) compared with KPM's life-of-mine schedule of 23.05 Mt at 3.1 g/t 4E (2.3 M ounce PGE). The split of the ore tonnage between chromitite seam and waste is estimated to be approximately 14 Mt of chromitite at 5.20 g/t 4E and 11 Mt of waste.

We note that in FY 2000/2001 the total ore delivered to the crusher from all sources was 2.08 Mt of which 1.14 Mt was chromitite seam.

Open pit and underground mining. In the Kroondal Block the UG2 reef dips northwards (from surface) at 10 to 15 degrees. The shallowest reef (0 m to 25 m vertical depth) is mined by standard truck and shovel mining from opencuts, that are progressively back-filled after the ore is removed. Below 25 m vertical depth the UG2 reef is extracted in a room and pillar underground mining operation.

There are currently two separate decline-accessed mines operating, the East mine and Central mine. A third mine, the West mine will be developed commencing in 2004.

In Snowden's opinion the tonnage of chromitite seam scheduled for production by KPM will be achieved up to June 2006. At this time open pit mining ceases and underground chromitite seam production is expected by KPM to ramp from 1.5 Mt to 1.8 Mt. At this stage mining from the Waterval Block has been scheduled by KPM to commence. It is possible, however, that KPM could swap Waterval for UG2 reef down-dip from the northern boundary of the Kroondal Block.

In its life-of-mine plan, Snowden has preferred to maintain budgeted underground seam production tonnes at 1.56 Mt per year until 2007, decreasing to 1.36 Mt in 2008 and 1.10 Mt in 2009. It is noteworthy that Snowden's life-of-mine schedule records a fall in seam grade from 5.59 g/t 4E in 2002 to 4.80 g/t 4E in 2009.

Waste separation from the ore. The upper Leader chromitite seam and the lower Main chromitite seam are separate by about 1 m of waste parting. In the open pit, every effort is made to selectively mine only the chromitite seam but about 20% of the ore delivered to the surface crusher is waste material. Separating chromitite seam from waste in the underground operation is more challenging and about 45% of all underground ore delivered to the surface crusher is waste. KPM and its mining contractors take all practical steps both underground and at surface to eliminate as much waste from the ore as possible prior to crushing.

Processing to a sulphide concentrate. After crushing the ore is directed to a dense media separation plant (DMS) where chromitite and waste are very effectively separated prior to the chromitite progressing to the main body of the process plant. The objective of the Kroondal process plant is to recover the PGE enriched sulphide minerals located in pore spaces between chromite grains. The separated chromite is stockpiled and sold while the sulphide concentrate is dispatched by road vehicle to the Impala operated smelter where the various PGE metals are produced. KPM is paid by Impala in accordance with its toll smelting agreement.

Innovation in Management. KPM has demonstrated great innovation, in the context of the South African mining industry in the way it has established its operation. All operational functions on the mine are contracted out with KPM retaining a small management team of about 15 to oversee the operation and performance of contractors. KPM management has expressed a high level of satisfaction in respect of the effectiveness of the outsourced approach. Snowden endorses the approach taken by KPM.

Innovation in mining and processing. Apart from its innovative operational management approach, KPM has introduced mining and processing practices, in both the underground mines and processing plant, that has set a precedent for the South African platinum mining industry. Firstly, in the underground mines, mining is progressively being mechanised by the introduction of low profile "jumbos" for blasthole drilling. Secondly, KPM has initiated wide reef mining of the UG2 which involves mining both the lower Main chromitite seam and the upper Leader chromitite seam (traditionally UG2 mining is restricted to the Main seam only). Thirdly, attention is given to waste separation in the underground operation through carefully managed blasting practice and through the inclusion of a DMS plant on the front end of the process circuit to separate waste following ore crushing.

**Operating cost.** Operating costs reported by KPM for FY 2000/2001 were R108.83 per ROM tonne and takes account of underground and open pit mining costs, processing costs, power and water and mine management services.

Capital costs. Capital expenditure required to bring the KPM operation to full production is virtually complete. In the opinion of Snowden's expert consultants KPM's capital programme has been extremely efficient and effective. The total Capex to date has amounted to R504.4M. The mine has provided for Ongoing Capital and Snowden has made allowance for R21M (real) per annum Replacement Capital and R40.5M (real) for additional mine infrastructure at Waterval in 2006.

Cash flow. Snowden's life-of-mine cash flow model for KPM has been developed on a quarterly basis through to December 2005 and annually thereafter. The average life-of-mine metal prices used in the cash flow analysis as advised by Ernst & Young Corporate Finance were:

Estimated metal price scenarios	Pt (US\$/o2)	Pd (US\$/oz)	Rh (US\$/oz)	Au (US\$/02)
Upper Case	468	493	882	286
Lower Case	468	362	647	286

In addition the model makes provision for Ru, Ir, Cu and Ni revenues, issues such as metal recoveries from open pit ore (largely oxide ore) and underground ore, net smelter royalty (NSR), smelter penalties, cost escalation with time and income tax. A US\$ to SAR exchange rate of US\$1.00 to R11.57 was used from the first quarter of 2002 which has been progressively adjusted to R18.63 by 2009. The South African component of the operating and capital costs has been adjusted by 5% per annum to reflect inflationary increases. The US\$ component of the operating and capital costs have been adjusted to account for 2% inflation per annum and exchange rate fluctuations.

Key financial indicators. The key financial indicators arising from KPM's life-of-mine cash flow analysis for the period January 2002 to December 2009 are summarised below. The cash flow assumes that KPM mines the Waterval Block at minimal additional capital cost.

- total seam mined is 13.0 Mt at 5.2 g/t 4E (producing 1.70 Moz 4E in concentrate);
- total ROM mined is 24.5 Mt at 2.88 g/t 4E;
- the net revenue total after penalties is \$US761M for the upper case metal price scenario and \$US675M for the lower case scenario;
- total operating and capital costs (nominal) total US\$274M;
- gross operating profit (nominal) totals \$US487M for the upper case scenario and \$US401M for the lower case scenario;
- income tax paid totals \$US146M for the upper case scenario and \$US120M for the lower case scenario;

- dividend tax paid (12%) totals \$US43M for the upper case scenario and \$US35M for the lower case scenario;
- net cash flow after normal and dividend tax is \$US298M for the upper case scenario and \$US246M for the lower case scenario; and
- the estimated net present value of KPM at a nominal after tax discount rate in the range of 10.3% to 12.2% as advised by Ernst and Young Corporate Finance is:

	Average 4E Basket Price (US\$/oz)					
Nominal Discount Rate	518	455				
10.3%	US\$209.0M	US\$171.2M				
12.2%	U\$\$197.6M	US\$161.7M				

The life-of-mine operating and capital cost (including penalties associated with the concentrate off-take agreement) is US\$200 per ounce 4E. KPM receives approximately 82% of the value of contained metal in concentrate which over the life-of-mine equates to about 82% of the average 4E basket price.

The Snowden personnel involved in the preparation of this report were Dr Philip Snowden (Principal Geologist and Managing Director), Mr Philip Retter (Principal Geologist), Mr Allan Earl (Principal Mining Engineer), Mr Alastair Forbes (Principal Mining Engineer), Ms Vivienne Snowden (Principal Geostatistician and Director) and Ms Elizabeth Haren (Senior Resource Geologist).

Consultants engaged by Snowden to assist with this appraisal include:

- Dr M Roberts, Principal Geotechnical Engineer, CSIR Miningtek, Johannesburg: Underground geotechnical engineering (visited KPM).
- Mr P Van der Walt, Principal Mechanical Engineer, Turnberry Projects Johannesburg: Site infrastructure, underground mechangical engineering, plant eingineering (visited KPM).
- Mr G Cunningham, Principal Process Engineer, Turnberry Projects Johannesburg: Metallurgy and process engineering (visited KPM).
- Digby Wells and Associates (DWA): Attending to all environmental issues, hydrology and geohydrology and the status of tenements. Key personnel from DWA visited KPM.

Several Snowden geologists and engineers from both the Perth and Johannesburg offices have previously undertaken or are currently undertaking consulting assignments on behalf of Aquarius. Snowden's prior consulting experience with Aquarius is summarised as follows:

Kroondal Platinum Mine. As mineral resource and mining engineering consultants to this project, Snowden audited the exploration data which formed the foundation of the project and provided the resource estimates, ore reserve estimates, designed the mining method and mining layout and developed the life-of-mine production plan for Aquarius' definitive 1998 feasibility study. All Snowden's work was subjected to detailed audit by numerous independent mining consultants on behalf of banking and financial institutions.

Marikana platinum project. Snowden was engaged by Aquarius to assemble all the available exploration data when they first acquired the project. Thereafter, Snowden has been involved in several stages of resource estimation and planning of exploration drilling campaigns; has audited the sampling and assaying protocols employed by Aquarius; was commissioned by Aquarius to undertake the resource estimation and mining and geotechnical engineering components of the Marikana feasibility study and is currently undertaking certain mining engineering studies on the Marikana project for Aquarius.

<u>Everest South</u>. Snowden has prepared a geological model and block model for Aquarius' Everest South Project. These models were then used by Snowden to prepare a scoping level mining study. Snowden has also prepared detailed designs for an underground bulk sample.

In carrying out these assignments, Snowden has always operated in an environment of independence and has always been restricted to dealing with technical, geological and mining matters. Snowden has also been commissioned to prepare an Independent Competent Persons Report on Aquarius' Mineral Assets for their proposed listing on the London Stock Exchange.

Yours faithfully

Dr P A Snowden D Phil, MAIG, FAusIMM, CPGeo Principal Geologist and Managing Director

SNOWDI

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# 1.0 <u>INTRODUCTION</u>

#### 1.1 SCOPE OF WORK

Ernst & Young Corporate Finance Pty Ltd has requested (letter dated 5 November 2001) Snowden Mining Industry Consultants Pty Ltd (Snowden) to prepare an Independent Technical Report and Valuation on the Kroondal Platinum Mine (KPM). It is our understanding that the purpose of the report is to provide a technical appraisal and valuation analysis of the mining and exploration assets of KPM. We understand that this report will be included in an Independent Experts Report by Ernst & Young Corporate Finance Pty Ltd regarding the acquisition of 25% of KPM by Impala Platinum Holdings Limited from Aquarius for the partial repayment of a loan facility with Investec.

The findings presented in this report are based on carefully scrutinised information provided by Aquarius and from a site visit to KPM by Snowden personnel and sub-consultants assigned to this appraisal. Snowden has held detailed discussions with Aquarius's management and senior mine personnel and has specifically reviewed KPM's life-of-mine production plan, mineral resources, ore reserves, mine infrastructure, environmental compliance, safety practices and conformity with other statutory obligations.

The Snowden personnel involved in the preparation of this report were Dr Philip Snowden (Principal Geologist), Mr Philip Retter (Principal Geologist), Mr Allan Earl (Principal Mining Engineer), Mr Alistair Forbes (Principal Mining Engineer, Johannesburg), Ms Vivienne Snowden (Principal Geostatistician) and Ms Elizabeth Haren (Senior Resource Geologist).

Dr Snowden, Mr Earl and Ms Haren met with KPM mine personnel and Aquarius consultants on site during October 2001.

Consultants engaged by Snowden to assist with this appraisal include:

- Dr M Roberts, Principal Geotechnical Engineer, CSIR Miningtek, Johannesburg: Underground geotechnical engineering (visited KPM).
- Mr P Van der Walt, Principal Mechanical Engineer, Turnberry Projects Johannesburg: Site infrastructure, underground mechanical engineering, plant engineering (visited KPM).
- Mr G Cunningham, Principal Process Engineer, Turnberry Projects Johannesburg: Metallurgy and process engineering (visited KPM).
- Digby Wells and Associates (DWA): Attending to all environmental issues, hydrology and geohydrology and the status of tenements. Key personnel from DWA visited KPM.

#### 1.2 GEOLOGICAL OVERVIEW

#### 1.2.1 Regional geology

The Bushveld Complex is situated in northern South Africa where it underlies an area of approximately 65,000 km<sup>2</sup> and constitutes one of the largest layered igneous intrusions known (Figure 1.1). The Complex is host to South Africa's major platinum group element (PGE), vanadium and chromite mines and is the world's foremost source of these commodities.

The Bushveld Complex is described as clover shaped, consisting of four lobes:

- a western lobe extending from near Pretoria westward to Rustenburg and then northwards around the Pilansberg alkaline complex;
- a southern lobe largely covered by the coal-bearing sediments around Witbank and Middelburg;

- an eastern lobe that extends northwards through the northeast of South Africa (eastern Mpumalanga) from near Middelburg in the south to the east of Potgietersrus in the north; and
- a northern lobe that extends northwards from Potgietersrus.

Within each of its four lobes is a layered sequence of basic and ultrabasic rocks known as the Rustenburg Layered Suite with the general dip of the layering being towards the centre of each lobe at between 8° and 40°. From the point of view of PGE mineralisation, the Rustenburg Layered Suite is of great importance. It comprises five zones, the Marginal, Lower, Critical, Main and Upper Zones. These zones and the stratigraphy of the Rustenburg Layered Suite have been identified in the eastern, western and northern lobes of the complex. Individual layers or groups of layers can be traced along strike for distances in excess of 100 km.

Chromite and the PGE's are the most important economic components of the Rustenburg Layered Suite. The largest deposits of chromitite in the world occur in the Critical Zone of the eastern and western lobes of the Bushveld Complex. Those in the lower part of the Critical Zone are prefixed "LG chromitites", while those in the upper Critical Zone are prefixed "UG chromitites". One of the UG chromitites, known as UG2 reef, is particularly important because of its high PGE content.

PGE's are concentrated in two principal reefs in the Rustenburg Layered Suite – the Merensky reef, located just below the top of the Critical Zone, and the UG2 reef. The UG2 occurs between 20 m (western lobe) and up to 400 m (eastern lobe) below the Merensky. While the Merensky has been and remains by far the most important PGE producer, the importance of the UG2 is developing rapidly and it is the most important reef in the context of this report. Up until about fifteen years ago there were concerns about being able to recover PGE's economically from UG2 ore. Extensive research, principally at Mintek in South Africa, assisted in resolving this issue.

Typical UG2 reef comprises a lower main chromitite seam (generally 0.6 to 1.0 m thick) with up to three leader chromitite seams, each generally 0.1 to 1.0 m thick. The Main seam and first Leader seam are generally separated by a middling or parting of waste 1 to 4 m in thickness.

# 1.2.2 KPM local geology

KPM is located approximately 15 km to the south-east of Rustenburg in the North West Province of South Africa over a portion of the western lobe area of the Bushveld Complex. PGE production from the Merensky and UG2 reefs along this segment of the western lobe is dominated by the Rustenburg Mine (Anglo American Platinum Corp. Ltd), Impala Mine (Impala Platinum Holdings Ltd) and the Eastern Platinum, Western Platinum and Karee Mines of Lonmin Plc (Figure 1.2).

KPM's project area, which consists of two separate blocks of ground – the Kroondal Block (which is currently being mined) and the Waterval Block, emerged through the consolidation of the diminutive mineral holdings of three companies (Kroondal Platinum Mines Ltd, Pacific Platinum Mines Ltd and RDX Mining Pty Ltd) covering the near-surface extent of the UG2 reef over a strike length of approximately 7 km. In August 1998, Kroondal Platinum Mines Ltd was listed on the Johannesburg Stock Exchange with Aquarius holding 45% of the company. The KPM operation was commissioned in August 1999 incorporating both open cut and underground methods of extraction along the shallow (8-10°) N-dipping UG2 reef. Aquarius has since aquired a 94.6% interest in Kroondal Platinum Mines Ltd.

The UG2 reef in the Kroondal Block consists of two PGE enriched chromitite layers, the lower Main seam and the upper Leader seam, which are separated by a barren pyroxenite known as the 'parting'. The Main and Leader seams average 73 cm and 27 cm thick respectively while the parting averages 116 cm thick. The reef dips gently at 8° to 10° to the north and achieves a maximum depth of approximately 190 m within the Kroondal Block. A thin pegmatoidal pyroxenite unit that hosts variable PGE mineralisation underlies the Main seam. Three significant barren near vertical dykes occur within the deposit.

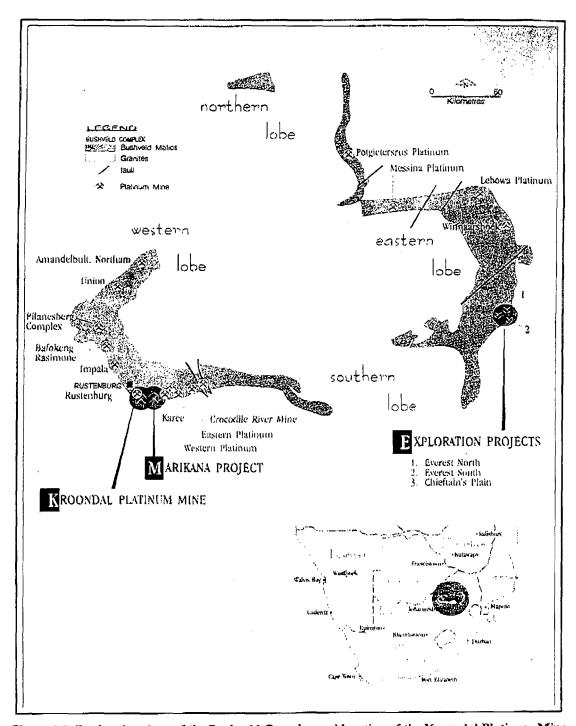


Figure 1.1 Regional geology of the Bushveld Complex and location of the Kroondal Platinum Mine

In places the UG2 reef steepens sharply to form ovoid, basin-shaped depressions called 'potholes'. At least five different styles of potholes have been identified in the UG2. Since potholes are impossible to predict unless intersected in an exploration drillhole, it is necessary to apply geological losses to the resource model. The room and pillar mining method at KPM allows the shallow-dipping down dip edge of the larger potholes at KPM to be mined. There is no need to adjust mining methods as the reef can be followed until the dip becomes too steep.

The Waterval Block is located north west from the Kroondal Block. The stratigraphic sequence in the Waterval Block is similar to that at Kroondal. The Main and Leader seams average 70 cm and 21 cm thick respectively while the parting averages 116 cm thick. The reef dips gently at approximately 10 degrees to the northeast, giving a maximum projected depth on the Waterval Block of 320 m. The Merensky reef is also present on the tenement, situated approximately 900 m to the northeast of the UG2, over a strike length of approximately 550 m, but is not included in the resource.

By all published accounts the Kroondal mine was brought to full production in an exceptionally smooth manner two months ahead of schedule and under budget. The mine represents a significant success story in the history of mine development in South Africa.

#### 1.3 CURRENT STATUS OF KPM'S OPERATION

#### 1.3.1 Mining

Open pit and underground mining operations are currently carried out in the central and eastern portion of the Kroondal Block as shown in Figure 1.3. Near surface ore is mined to a depth of approximately 25 m by an experienced mining contractor using open pit methods. Conventional drilling and blasting methods and a hydraulic shovel and trucks are used to remove the overburden, which is tipped into previously mined voids. The Leader and Main seams are then mined using a hydraulic excavator and trucked to the open pit crusher. Approximately 20% of the mine's total production has been mined from the open pits.

Two separate underground mines have been established in the central and eastern portions of the Kroondal block to mine the deeper ore from the base of a crown pillar (which lies immediately below the open pits) to the orebody limits on KPM's northern boundary. A third mine will be established on the western side of the Kroondal Block. Each mine is accessed from a portal established at the base of the open pit. The full width of the UG2 reef is mined using a room-and-pillar mining methods. The UG2 reef is drilled using conventional pneumatic rock drills although a number of electric hydraulic drilling jumbos have recently been introduced into the mine. Blasted rock is tipped onto strike conveyors, transferred on to a dip conveyor and then conveyed to surface. The amount of waste material reporting to the process plant is reduced by preferentially blasting the waste parting at a larger lump size. These large waste blocks, which are large partings, are screened off at a grizzly underground and tipped into the mined-out workings. A second screening arrangement has been installed on surface where oversize rocks are hand sorted. Waste rocks are rejected while ore is returned to the conveyor belt for processing.

While every effort is made to separate waste from the PGE-enriched chromitite seam some 45% of all material delivered to the crusher (ROM) is waste and 55% is chromitite seam.

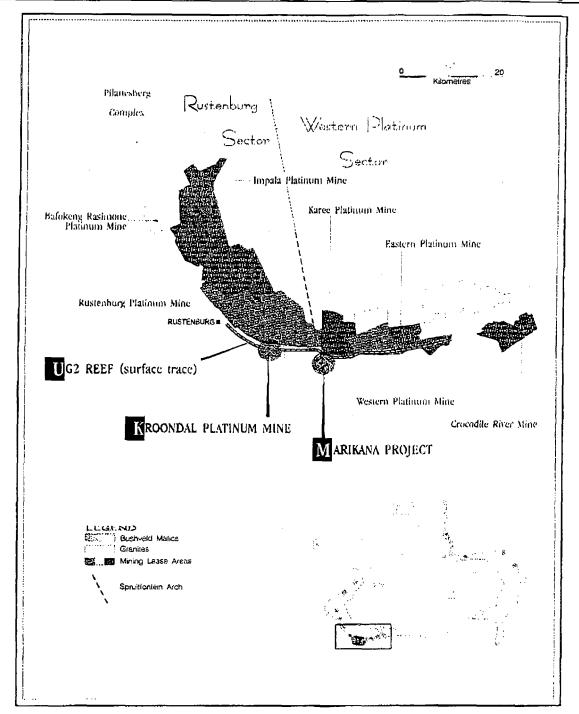


Figure 1.2 Situation of Kroondal Platinum Mine near Rustenburg in the western Bushveld

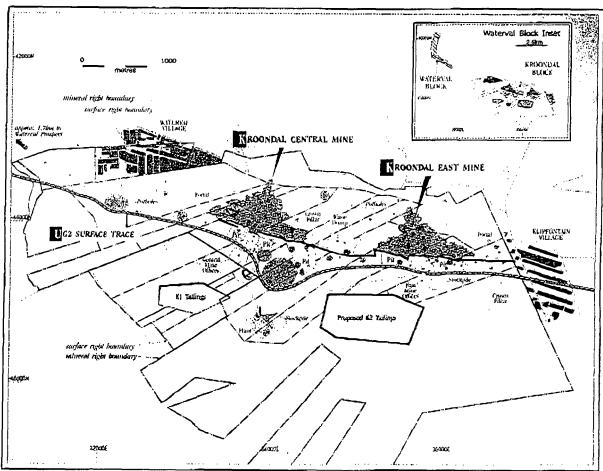


Figure 13 General layout of the Kroondal Block of the Kroondal Platinum Mine

# 1.3.2 Processing and engineering

The overall current process is crushing to smaller than 20 mm followed by dense media separation (DMS), with rejection of 30% of the feed at a grade of less than final tailings value. The retained fraction is subjected to rod milling, followed by primary rougher flotation. The rougher tailings are treated for chromite recovery prior to secondary ball milling and secondary rougher flotation. The tailings are discarded to the tailings dam. The primary concentrate is directed to the high-grade final concentrate stocks whilst the secondary concentrates are cleaned in an number of stages and are allocated as low grade final concentrate. The final concentrates are separately dispatched to the toll smelter.

The KPM processing plant is a state of the art facility, which has been recently expanded to include the secondary ball milling and flotation operation. The original processing plant had included the innovative and successful use of DMS to reject waste material prior to milling, thus improving the grade and decreasing the tonnage to be treated. This is a first within the platinum industry and is particularly appropriate for the UG2 ore and the mining method employed.

The plant performance has improved with regard to throughput, metal recovery and the production of the second quality of final concentrate following the commissioning of the secondary ball milling circuit. The modified process has not been fully optimized and thus design parameters have not been achieved on a regular basis. It would be expected that design objectives will be achieved by early in 2002, and that this performance level will be maintained for the life of the operation.

The plant appears to be in good physical condition with a high level of maintenance being achieved. The operations model, with a contractor manning the plant and the original equipment manufacturers (OEM's) being retained on contract to oversee the performance of their equipment, is novel within the South African mining industry and seems to be proving satisfactory.

## 1.3.3 Historic production

Figure 1.4 shows historic production, measured as DMS feed, for the period January 2000 to September 2001. Figure 1.5 shows concentrate production and grades for the same period.

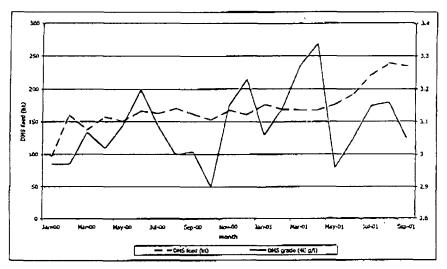


Figure 1.4 DMS production at KPM (Jan 2000 to September 2001)

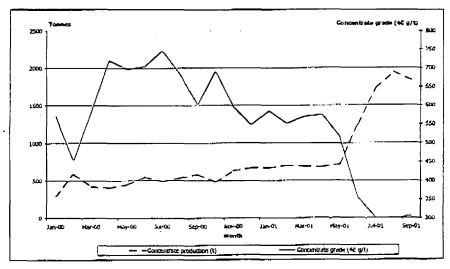


Figure 1.5 Concentrate production at KPM (Jan 2000 to September 2001)

# 1.3.4 Management approach

The approach implemented by Aquarius for the operation of KPM has included:

adopting a state-of-the-art approach to mining where practical and appropriate;

- employing specialist contractors to execute all key mining and processing functions on the project including open pit mining, underground development and mining, and operation of the process plant;
- progressively mechanising the underground development and mining functions to achieve production levels consistent with the best achieved in world mining;
- mining both the Main seam and Leader seam components of the UG2 through wide-reef mining:
- minimising waste in run-of-mine ore by scalping out some of the parting waste that occurs between the Main and Leader seams underground and storing it back in mined-out areas;
- further reducing waste to the plant through dense media separation (DMS) at the front-end of the processing plant which was recently upgraded (commissioned June 2001);
- establishing a life-of-mine sales agreement of PGE concentrates to Impala for smelting, refining and on-sale. The concentrate is sold to Impala for approximately 80% of the value of the contained metal. Chromite rich spiral concentrates are sold through separate agreements (where chromite mineral rights are vested in the company).

## 2.0 RESOURCE ESTIMATES

#### 2.1 INTRODUCTION

Snowden completed the first resource estimate for the Kroondal Block in October 1996. The resource was updated in March 1997 and this resource estimate was included in the July 1997 Feasibility Study incorporating the data from 88 exploration diamond drillholes. In September 1997, Snowden completed a further update using 113 exploration drillholes. Ordinary kriging was used for the estimation of each element. The elements were then combined after estimation to produce the 4E grade (Pt, Pd, Rh and Au) for reporting resources. In April 1997 Snowden completed a resource estimate for the Waterval Block using 11 drillholes. Snowden has had no involvement in KPM's resource modelling since September 1997.

In October 2000 Anglo Platinum Limited (Anglo Platinum) completed a resource estimate using 149 exploration diamond drillholes for the Kroondal Block and 14 exploration diamond drillholes for the Waterval Block. Ordinary kriging was used for the estimation of the combined 4E grade. The Anglo Platinum resource estimate was undertaken as part of Anglo Platinum's audit of KPM's operation pending the possible merger of certain Anglo Platinum and KPM land holdings.

In June 2001, KPM completed a resource estimate on which the current life-of-mine plan is based. The inverse distance squared technique was used for the estimation of the combined 4E grade. The resource model excluded loss due to the occurrence of potholes and large dykes.

Table 2.1 summarises the resource calculations since March 1997.

#### 2.2 DATA

# 2.2.1 Drilling and sampling

KPM's June 2001 resource model, for the Kroondal Block, was based on 150 exploration diamond drillholes. Figure 2.1, from the June 2001 geological report by Mercilheim Geological Services (MGS), shows the location of these drillholes within the mine lease area. It is noted that data for Anglo Platinum holes, drilled immediately to the north of the Kroondal Block boundary and surrounding the Waterval Block were included in the database for June 2001 resource modelling.

Snowden's estimate of 1997 excluded the drillholes surrounding the Waterval Block.

Re	Table 2.1 source calculations since l	March 1997	
Kro	ondal Block - Leader plus	Main seams	
Author	Date	Tonnes (million)	4E grade (g/t)
Snowden	March 1997	20.40	5.50
Snowden	September 1997	20.70	5.55
Anglo Platinum	October 2000	17.92*	5.24
KPM	June 2001	17.22*	5.24
Waterval Block - Lea	der plus Main seams		
Snowden	April 1997	5.10	5.20**
Anglo Platinum	October 2000	4,24	5.03
KPM	June 2001	4.24	5.03

<sup>\*</sup> Depleted for mining. \*\* Arithmetic mean at 80% confidence interval.

The UG2 chromitite seams were generally recovered in the drill core as massive and unfractured. Core recoveries are reported to have been generally better than 98%. Minor losses of chromitite were noted from drill core in areas where the UG2 is weathered. The core losses were judged not to have materially affected the resource estimate.

Grade control (production) channel sampling has been routinely carried out underground since March 2000. Estimates of production are based on underground channel samples collected in accordance with KPM's standard sampling procedure (MGS, 2000). This procedure is considered by Snowden to be appropriate for the mineralisation. KPM has noted that underground sampling for the first two months of sampling was of poor quality and hence unreliable. This data remains in the KPM grade control database. In Snowden's opinion, poor quality data should be removed from the database to avoid any bias. However, this data is located outside the reconciliation area.

The geological characteristics of the Leader and Main seams differ in a number of respects. The Leader seam usually has a sharp upper and lower contact and the PGE grade distribution is uniform over the width of the seam. Standard procedure for the sampling of Leader seam in both exploration diamond drilling and underground grade control (channel) sampling is to take the seam as one sample. In contrast, the Main seam has a sharp upper contact and a typically irregular, slightly gradational and wavy lower contact. The PGE's are not uniformly distributed and a number of sub-samples are taken for both exploration diamond drilling and for underground grade control sampling. The weighted average of the sub-samples is then used for each intersection or channel sample and this weighted average is used for resource estimation purposes. Snowden considers this to be an appropriate procedure.

# 2.2.2 Laboratory sample preparation and assaying

KPM has reported that all the exploration diamond drillhole samples were assayed by Mintek for the 4E split by fire assay, using lead collection and ICP-MS. These were done in duplicate, and the two results agreed well.  $Cr_2O_3$  and acid soluble Cu and Ni determinations were also undertaken by Mintek. Snowden understands these protocols were followed for subsequent drilling campaigns except for the latest campaign which was analysed by Genalysis using NiS-collection techniques. The assay method employed is widely used in the platinum mining industry and is an accepted analytical procedure.

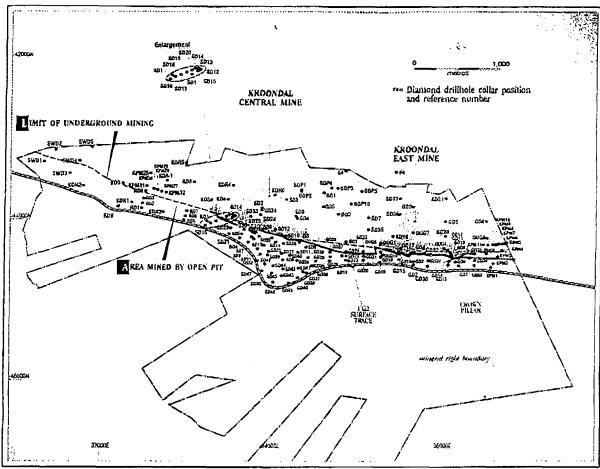


Figure 2.1 Plan showing KPM's tenement holding and the collars of all diamond holes drilled by Aquarius in the vicinity of the Kroondal Block

Preparation and assaying of underground grade control samples is undertaken by the Impala Platinum Laboratory in Rustenburg using the Pb-collection technique. It is understood that the procedures used are standard for grade control sampling in Bushveld platinum mines. The Impala Platinum Laboratory reports that the collection of the 4E's is "not total in the 6 hour fire assay procedure". Thus the 4E value is always lower than the total PGE content. Impala Platinum Laboratory reports that a fire assay correction factor (FACF) of  $\pm 1.32$  has been established to convert UG2 assay results to mill head grades at Impala mine in Rustenburg. No factor has been determined analytically for KPM but KPM expects the true 4E grade to be 8 to 13% higher than the uncorrected assays. Previous work by Snowden has confirmed that Rh (which comprises approximately 10% of the PGE grade) is underestimated by this assay method.

There is currently no correction applied to Pb-collection assays in either the exploration or the underground grade control sample database. Reconciliation studies completed using uncorrected data will inevitably result in the models underestimating true PGE grades. The extent of this bias may be different for different laboratories depending on the procedures used. KPM regards the performance of the Impala Platinum Laboratory as generally satisfactory, although issues have arisen from time to time with regard to quality performance which KPM has addressed. Satisfactory reconciliation can only be undertaken once data has been standardised to a common basis.

#### 2.2.3 Bulk density

A total of 84 density determinations were provided to Snowden prior to the March 1997 resource estimate. Snowden concluded that an average density of 3.80 t/m<sup>3</sup> for sulphide (fresh) Leader and

Main seams was appropriate. Snowden used this value when reporting all PGE resources for the KPM feasibility study. Anglo Platinum reported resources using two density values of 4.00 t/m<sup>3</sup> and 3.92 t/m<sup>3</sup>.

KPM currently uses a density value of 3.92 t/m³ for the sulphide Leader and Main seams, which was determined by the 71 underground samples analysed by Craton Resources. Snowden considers that, in light of the testwork results, analysed by Snowden, it is possible that the density of 3.92 t/m³ currently being used could be up to 3% too high. Reconciliation between mining and plant process has been poor. It is therefore KPM's opinion that the density is actually between 4.1 t/m² and 4.2 t/m². KPM has indicated that further testwork will be performed.

#### 2.2.4 Surveying

Contract surveyors surveyed all exploration diamond drillhole collars. Exploration diamond drillholes were vertically drilled and there was no down-hole surveying. Snowden understands that no issues have arisen in either the open cut or underground mining operations related to survey matters.

#### 2.2.5 Database integrity

In October 2000, Anglo Platinum undertook a detailed review of KPM's operation. Snowden understands that a key part of the review involved thorough checking of the exploration drillhole database prior to preparation, by Anglo Platinum, of resource estimates for both the Kroondal and Waterval Blocks. There is no available documentation recording either the review process, or the findings by Anglo Platinum. KPM is in possession of the tabulated resource estimates prepared by Anglo Platinum (Table 2.1), however, Anglo Platinum has not made their geostatistical block models available to KPM.

As part of the due diligence review for this report, Snowden checked the exploration drillhole database used by KPM for its June 2001 resource estimate of the Kroondal Block. Two drillholes were identified with incorrect Leader seam assays (KD2 and KDR5). The assays in these drillholes were set to very low PGE grades. The resulting June 2001 resource estimate has underestimated the Leader seam PGE grade locally in the areas immediately surrounding the two drillholes. The impact on the global resource is not likely to be significant. This database also included exploration diamond drillholes intersecting the Waterval Block.

Overall, it is Snowden's opinion that the KPM exploration drillhole database has provided an appropriate basis for developing the June 2001 resource model for the Kroondal Block.

#### 2.3 CONTINUITY OF MINERALISATION

Snowden and Anglo Platinum have both demonstrated that PGE grades within both the Leader and Main seams display good continuity, except where the reef is disturbed by potholes. The continuity of thickness in both the Leader and Main seams is also good. Both the Leader and Main seams PGE grades and thickness have been confirmed by underground and open pit mining.

The continuity demonstrated by Snowden and Anglo Platinum suggests that, where drillhole spacing exceeds approximately 200 m, confidence in interpolation of the Leader and Main seams PGE grade and thickness decreases, while in situations where spacing is greater than 500m, confidence in interpolation is very low. Currently, the drill spacing is between 200 m and 500 m towards the northern mine boundary, where the resource is deepest. Snowden considers this spacing generally adequate for long range mine planning but is unlikely to predict short range grade variation.

#### 2.4 JUNE 2001 RESOURCE ESTIMATE

KPM's June 2001 resource estimate for the Kroondal Block was accompanied by a report entitled 'Year End Geological Report June 2001' (MGS, 2001). Snowden did not review the Waterval Block resource model or supporting documentation. The following assessment relates only to the resource estimate of the Kroondal Block.

Snowden understands that the KPM June 2001 Kroondal Block resource estimate is based on a block model created using surfaces representing the top of both the Leader and Main seams. The thickness of the Leader and Main seams, and the parting were interpolated separately using thicknesses recorded in the drillholes. A parent block size of 50 m x 50 m x 2 m with sub-blocking to 12.5 m x 12.5 m x 0.5 m was used. Potholes were modelled locally and Snowden understands that the dykes were excluded. An additional 7% pothole and 3% dykes loss has been applied. In KPM's opinion, the thinner than "normal" intersections will, with the difference in seam elevations, account for the extra 3% loss (13% actual –10% applied to Resource).

The Leader and Main seams were composited and estimated separately. Inverse distance weighting to the power of two was used to estimate Leader and Main seam PGE grade and thickness. An isotropic search of 1000 m in all directions was applied. A minimum of 5 intersections were used to interpolate PGE grade and thickness into each block in the resource model.

The exploration diamond drillholes are not evenly spaced, with clusters of drillholes in some areas. Snowden observes that the inverse distance weighting technique could introduce a bias due to the clustering. The bias is a result of block estimates in areas away from the clustered data being excessively influenced by seam assays from the more densely drilled areas. The KPM model is also likely to be oversmoothed due to the single long search employed. This will be particularly the case in areas where assay data is relatively sparse. Anglo Platinum data immediately north of the KPM northern boundary was used to support the estimation.

The estimation has been performed using a combined 4E grade. This method does not account for local variation in the individual elements. Estimation of each element separately would produce a more locally reliable model.

Validation, by Snowden, of the resource model versus input data did not reveal any issues. Snowden considers that, using the inverse distance squared method chosen, the resource model is sufficiently accurate reflection of the input exploration drillhole data.

The June 2001 resource model is unclassified. Considering only the continuity displayed in the variograms modelled by Snowden and Anglo Platinum, it is Snowden's opinion that where the drill spacing exceeds 200 m, resources should not be classified as Measured. Currently, the drill spacing is between 200 m and 500 m towards the northern mine boundary, where the resource is deepest. While the drillhole spacing in the north of the mine can be considered acceptable for a global resource estimate, the spacing is not adequate to identify local PGE grade or seam thickness variability.

In Snowden's opinion, the June 2001 resource estimate is satisfactory as a basis for determining global resources and ore reserves. The methodology employed is, however, likely to 'smooth' the model and not reflect local PGE grade variability. This will not impact the life-of-mine plan but could have an impact on the short term mine plan and be reflected in variable period to period reconciliation.

#### 2.5 RECONCILIATION

# 2.5.1 Introduction

In order to validate the June 2001 Kroondal Block resource model, KPM developed a grade control model. The model is based on all the exploration drillhole data plus underground grade control sample

data and measured width data. KPM produced reconciliation tables for the period of mining from January to June 2001, which are the basis of this review.

#### 2.5.2 Grade control model

The grade control model was generated by KPM using the same methodology as that employed to develop the June 2001 exploration drillhole resource model. To estimate PGE grade and width within the Leader and Main seams, the exploration drillhole database was supplemented with PGE grades and widths from underground grade control samples as well as seam widths measured by surveyors underground.

Comparisons, by Snowden, of the grade control model with input data confirmed that in general it appropriately reflects the in-situ grade control data.

Underground grade control samples were assayed using a different laboratory to that used for the seam intersections in the exploration drillholes. This may have resulted in a bias in the grade control samples combined PGE grades compared with exploration assays. KPM acknowledges this bias to be in the order of 8-13% underestimation of the total PGE grade in the grade control assays. No correction of the exploration or grade control samples was undertaken prior to model generation, therefore, the grade control model contains PGE grade estimates generated from two different laboratories — one for the exploration holes and a different one for the grade control samples. In Snowden's opinion, this limits the value of the PGE grade component of the reconciliation study.

#### 2.5.3 Resource vs. grade control models

Table 2.2 summarises the reconciliation between the exploration drillhole resource model and the grade control model for the period January 2001 to June 2001. In addition, the as-mined survey tonnage and width estimates are shown. The surveyed tonnes exclude pillars while the grade control model includes tonnes in pillars. The grade control model PGE grade bias discussed in the previous section should also be kept in mind. Figure 2.2 displays PGE grade, seam thickness and seam tonnage comparisons between the exploration drillhole resource model and the grade control model.

Using the results contained in Table 2.2, and applying, say, a 13% fire assay correction factor to the grade control model's average PGE grade, it appears there is an underestimation of PGE grade in the June 2001 resource model for the combined Leader and Main seams in the Central mine area. The East mine area has an overestimation in the resource model for the Leader seam. In Snowden's opinion these discrepancies are most likely to be a result of the wide spacing of exploration diamond drillholes in the reconciliation areas (up to 400 m) and the smoothing inherent in the resource model.

The Leader chromitite seam width is underestimated in the resource model by 18% for the Central mine and 13% for the East mine. The Main chromitite seam width in the resource model is underestimated by 8% compared with the grade control model for the Central mine and matches the grade control model for the East mine. Tonnage comparisons between the grade control model and the resource model are in line with the seam width differences.

End of month survey report figures were entered into the reconciliation table as surveyed widths and tonnages. Surveyed widths are 4% to 14% lower than grade control estimates and tonnages are 18% to 29% lower than grade control estimates because pillars are not extracted from the grade control model. The discrepancy between surveyed widths and grade control estimates was judged by KPM to be principally due to human error during data collection. The reconciliation information should, in Snowden's opinion, be accompanied by notes to explain the variances noted.

# 2.5.4 Reconciliation Observations

The reconciliation has highlighted the difficulty in attempting to predict local PGE grades and seam widths (in the reconciliation area) from relatively widely spaced drillholes. In Snowden's opinion, however, the reconciliation study using the grade control model has confirmed the general trends in both the Leader and Main seam PGE grades and widths which were predicted by the June 2001 resource model in the reconciliation area.

Table 2.2

January to June 2001 monthly reconciliation

Resource model versus grade control model and surveyed production

						Leader	Seam						
	Barras	rec Mod	-1	Code Con			٥	<b>A.</b>		%	Differen	ce	
Date	Resor	INCE IVIDO	ici	Grade Control (GC) Model			Survey		GC	to Resource	ie ]	GC to Survey	
	Tonnes	PGE	Width	Tonnes	PGE	Width	Tonnes	Width	Tonnes	Width	PGE	Tonnes	Width
Central Mine	3												
Jan-01	22,969	2.74	0.29	19,600	2.51	0.33	16,132	0.30	85%	114%	92%	82%	919
Feb-01	25,113	2,60	0.29	25,419	2.54	0.33	18,013	0.30	101%	114%	98%	71%	919
Mar-01	18,681	2.66	0.28	23,275	2.48	0.34	18,884	0.30	125%	121%	93%	81%	889
Apr-01	23,275	2,76	0.28	23,888	2.54	0.33	18,789	0.29	103%	118%	92%	79%	889
May-01	14,700	2.77	0.27	21,131	2.50	0.33	15,194	0.29	144%	122%	92%	72%	889
Jun-01	20,519	2.76	0.27	22,356	2.44	0.33	19,311	0.28	109%	122%	88%	86%	859
TOTAL	125,257	2.71	0.28	135,669	2.51	0.33	106,323	0.29	108%	118%	93%	78%	88%
East Mine							-		-				
Jan-01	15,925	3.29	0,26	16,844	2.60	0.29	13,295	0,26	106%	112%	79%	79%	90%
Feb-01	17,456	3.31	0.26	16,538	2.49	0.29	12,519	0.24	95%	112%	75%	76%	83%
Mar-01	12,250	3.28	0.26	14,394	2.47	0.29	13,262	0.25	118%	112%	75%	92%	869
Apr-01	27,869	3.24	0.26	33,994	2,52	0.29	15,436	0.25	122%	112%	78%	45%	86%
May-01	14,700	3,26	0.25	16,538	2.56	0.29	13,141	0.25	113%	116%	7 <b>9</b> %	79%	86%
Jun-01	17,763	3.26	0.25	19,906	2.52	0.29	16,023	0.25	112%	116%	77%	80%	869
TOTAL	105,963	3.27	0.26	118,214	2.53	0.29	83,676	0.25	112%	113%	77%	71%	869

						Main	Seam						
	0	rce Mod		A-13- A-1			Cum	-		%	Differen	ce	
Date	KESOL	rce Mod	ICI	Grade Con	(DU)	Model	Surv	-y	GC	to Resource	iė į	GC to S	urvey
_	Tonnes	NÇE	Width	Tonnes	PGE	Width	Tonnes	Width	Tonnes	Width	PGE	Tonnes	Width
Central Mine	t												
Jan-01	49,613	5.37	0.82	46,244	5,35	0.76	39,957	0.73	93%	93%	100%	86%	96%
Fcb-01	65,844	5.45	0.81	61,863	5.42	0.76	45,445	0.75	94%	94%	99%	73%	99%
Mar-01	64,006	5.40	0.81	56,044	5,23	0.75	46,585	0.73	88%	93%	97%	83%	97%
Apr-01	78,400	5.44	0.85	61,863	5.21	0.76	47,498	0.74	79%	89%	96%	77%	97%
May-01	50,225	5,76	0.79	43,181	5.17	0.76	36,822	0.67	86%	96%	90%	85%	88%
Jun-01	64,619	5.87	0.83	56,350	5.39	0.76	49,218	0.71	87%	92%	92%	87%	93%
TOTAL.	372,707	5.54	0.82	325,545	5.30	0.76	265,525	0.72	87%	92%	96%	82%	95%
East Mine													
Jan-01	41,344	6.82	0.74	46,856	5,85	0.74	35,900	0,70	113%	100%	86%	77%	95%
Feb-01	48,694	6.63	0.73	18,694	5.93	0.73	36,556	0.71	100%	100%	89%	75%	97%
Mar-01	39,200	6.47	0.73	40.119	5,93	0.73	36,972	0.69	102%	100%	92%	92%	95%
Apr-01	84,525	6.51	0.74	84,525	5.72	0.73	45,308	0.73	100%	9 <del>9</del> %	88%	54%	100%
May-01	46,856	6.53	0.74	45,938	5,79	0.74	35,954	0.70	98%	100%	89%	78%	95%
Jun-01	51,540	6.65	0.74		5.69	0.74	43,313	0.68	96%	100%	86%	88%	92%
TOTAL	312,159	6.59	0.74	315,438	5.80	0.73	234,003	0.70	101%	100%	68%	74%	96%

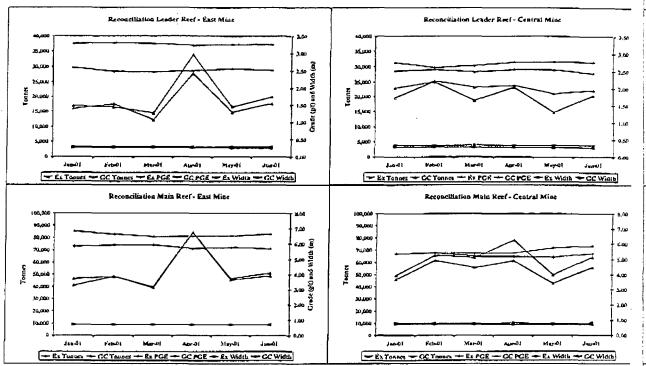


Figure 2.2 Reconciliation between the grade control and resource models Leader seam East mine (top left), Leader seam Central mine(top right), Main seam East mine (bottom left), Main seam Central mine(bottom right).

# 3.0 ORE RESERVE ESTIMATES

KPM's ore reserve estimates reported in June 2001 for the Kroondal and Waterval Blocks are summarised in Table 3.1. The ore reserves are based on KPM's June 2001 exploration resource model. It should be noted that since the mineral resource for Kroondal and Waterval has not been classified, any reference to "ore" or "reserve" in this document should be construed as a generic term that does not necessarily imply compliance to the SAMREC and JORC Codes. Notwithstanding the non-classification issue, Snowden is satisfied that there is an acceptable level of confidence in the ore reserve (depleted by uncorrected production) to justify KPM's life-of-mine plan.

	Table 3.1 serve estimate (June 2 rected production to J	•
Mining Block	Mt	PGE (g/t)
Kroondal Block	12.01	5.33
Waterval Block	2.98	5.02
Total Reserve	14.99	5.27

The ore reserve estimates prepared by KPM report Leader and Main seam tonnes only, and exclude any allowances for hangingwall, parting or footwall dilution. A cut-off grade has not been applied to the estimates. The estimates include allowance for ore loss due to pillars, property boundaries, geological losses (10% pothole loss and 10% potholed drillholes and statutory restrictions). Major dykes were excluded from the resource.

# 3.1 EXTRACTION RATE AND ORE LOSSES

The Kroondal Block is subdivided into a number of regions based on geological setting, metallurgical recovery, mining type (ie open pit and underground), depth below surface, limitations imposed by statutory restrictions or a combination of these factors. Each region is defined by a closed polygon that enables the area, tonnage, grade and seam widths to be reported individually. The regions and their associated extraction rates applied by KPM are as follows:

- the large, near surface pothole in the Central mine area is excluded from all reserve calculations:
- the zone from 0 to 5 m below surface (mBS) is excluded from the reserve estimate due to low metallurgical recovery;
- the zone from 5 m to 25 m in the central and eastern portion of the Kroondal Block is planned to be mined by open pit methods and a 96% mining recovery is assumed;
- the zone from 5 m to +/-65 m in the western portion of the Kroondal Block is planned to be mined by open pit methods, and a 96% mining recovery is assumed;
- a 20 m wide crown pillar is left immediately below the base of the open pit mine, and is excluded from all ore reserve estimates as there is limited potential to extract this pillar at the end of the mine's life:
- for underground mining, from the base of the crown pillar to 90 mBS, an extraction rate of 89.9% is assumed;
- underground mining from 90 to 120 mBS is assigned an extraction rate of 87.8%;
- underground mining from 120 to 150 mBS is assigned an extraction rate of 85.7%;
- a 50% extraction rate is assumed for underground mining below the Waterval village to 90 mBS, which is located in the western portion of the Kroondal Block;
- no open pit mining will be carried out within 200 m of the Waterval village or the Klipfontein village, which is located on the eastern boundary of the Kroondal Block; and
- the major east-west and north-south trending dykes in the upper part of the underground mine are excluded from the ore reserve estimate.

In addition to the extraction rates described above, a 7% ore loss due to potholes plus 10% potholed drillholes are applied by KPM to all areas. A 7% ore loss for potholes is low compared with the reported pothole factor of approximately 13%. The East mine has encountered a total of 24 large (+20 m diameter) potholes and the current estimate of loss is 15.8%. The Central mine has encountered 13 large potholes and the current estimate of loss is 10.5%. The overall estimate of loss to potholes is 12.9%. The average dyke loss for both mines is currently 3.9%. However, KPM believes that their resource estimate contains a 10% allowance for potholes. Snowden has not confirmed this independently and has assumed a 14% ore loss.

KPM calculated the resource seam tonnage within each region by multiplying the area of the polygon that represents each region by the average seam width within the polygon and then applying a density of 3.92. Extraction rates and ore loss factors were then applied to derive KPM's reserve estimate. Each region was assigned the average seam resource grade reported for that region, and no allowance was made for dilution.

In Snowden's opinion the methodology and modifying factors described above are appropriate for the Kroondal and Waterval Blocks, with the following exceptions:

• The reported ore reserve estimate does not include allowance for dilution and should consist of the tonnage and grade of all material that is likely to report to the processing plant (ie. the tonnage and grade established at the crusher feed, which includes all blasted material, less any waste that will actually be removed by the mining contractor). For FY 2001/2002, 0.94 Mt of waste and 1.14 Mt of seam was delivered to the crusher. This is equivalent to a dilution factor of 82% for the open pit and underground mines.

• The underground mining contractor is paid on the basis that 50% of waste will be scalped from the blasted rock. This means that the contractor is paid on the basis that ore delivered to the mill (ROMO) will consist of seam plus 70% waste. This 70% waste factor should not be used to estimate reserves as it is consistently exceeded during mining and is closer to 95%.

The overall impact of the variations on the ore reserve will be to reduce the seam tonnage by 7% and to add a 82% waste tonnage component to the reserve. The average reserve grade for open pit and underground will be 2.9 g/t 4E. The overall impact of the change in the reserve schedule is addressed in Section 3.9.

# 3.2 RESERVE VALIDATION

In order to compare the pre-mining resource estimate (and ultimately the pre-mining reserve estimate), Snowden reviewed the estimation process outlined by KPM during Snowden's site visit and compared it with Snowden's subsequent review of KPM's estimating work sheets.

# 3.2.1 Volume and tonnage

KPM's resource estimate is within 1% of the seam tonnage reported from the KPM block model. However, KPM's estimates for individual regions may vary from +10% to -25% compared with the block model report.

## 3.2.2 Seam grade

Snowden reported the seam 4E grade from KPM's block model. The block model grades were compared with the grade reported by KPM (Table 3.5). The difference in overall seam grade is less than 1%. However, the seam grade for individual regions can vary by more than 10%.

#### 3.2.3 Extraction rates and ore loss used by KPM

Table 3.2 summarises the most recent recommendations for UG2 reef extraction rates for a range of depths in the underground operation. The extraction rates account for recent geotechnical recommendations less 10% loss for dykes and other geological structures. Table 3.2 also summarises the extraction rates used for the feasibility study, and the actual extraction rates applied by KPM to estimate the June 2001 reserve. This table indicates that an improved understanding of geotechnical controls in the underground mine could have allowed the extraction rate to be improved from an average 74% to 82%. However, the actual extraction rate applied is 76%, which means that the current reserve tonnage is likely to be conservative.

# 3.3 CUT-OFF GRADE CALCULATION

The current break-even cut-off grade for underground ore (R/ROM t) is 1.0 g/ROM t Pt(eq) calculated using the following cost and revenue parameters:

- a ROM to seam ratio of 1.72;
- a mining, milling and administration cost of R96.24/ROM t (Dec 2001 budget);
- a Pt(eq) price of US\$476/oz, US\$15.31/gram or R144/g;
- a metallurgical recovery of 79%; and
- a NSR of 82%.

The individual block model seam grades are relatively uniform across the deposit and significantly higher than the break-even cut-off grade. Therefore no cut-off grade is applied by KPM. Mining of lower grade material around potholes is generally terminated once the steep dip makes mining difficult or impractical using the semi-mechanised methods employed at KPM.

Table 3.2 Extraction rates for Kroondal Block underground reserve estimate (June 2001)						
Depth mBS	Feasibility	Recent geotechnical recovery less 10%	Reserve Extraction rate			
60	77	83	74			
80	74	81				
100	72	81	79			
120	69	78				
140	66	76	77			
160	65	75				
180	63	75				
Weighted Average	74	82	76			

#### 3.4 COMPARISON WITH THE FEASIBILITY STUDY

The June 2001 ore reserve (open pit and underground), before depletion for mining, totals 14.1 Mt of chromitite seam at 5.23 g/t 4E (2.37 Moz) compared with the 1998 feasibility study Proved and Probable Ore Reserve estimate of 13.95 Mt of seam at 5.69 g/t 4E (2.55 Moz).

KPM's pre-mining underground reserve estimate (June 2001) is 11.3 Mt of seam at 5.28 g/t 4E. This compares with the feasibility Ore Reserve estimate of 10.98 Mt of seam at 5.65 g/t 4E.

#### 3.5 WATERVAL ORE RESERVES

The Waterval Block contains approximately 3 Mt of seam at 5.02 g/t 4E. The following comments are made about this reserve:

- no detailed infrastructure or mining designs for the Waterval Block have been prepared by KPM;
- the Waterval Block is approximately 300 to 500 m wide across strike, and ranges in depth from outcrop to 320 mBS and dips at 8 to 9 degrees to the north; and
- mining from 5 to 25 mBS will be by open pit and the remainder by KPM style room and pillar stoping in the final years of KPM's operation.

Snowden understands that negotiations are in progress between KPM and Ango Platinum to discuss the possibility of KPM swapping the Waterval area for an equivalent area of Anglo Platinum ground immediately down dip of the Kroondal Block's northern boundary.

#### 3.6 DEPLETION FOR MINING

KPM tabulates the June 2001 mined (depleted) resource as 2.98 Mt of seam at 5.23 g/t 4E and the mined-out reserve as 2.41 Mt of seam at 5.23 g/t 4E. This indicates an average 80% conversion from resource tonnage to ore reserve tonnage to date while the remaining resource shows a 70% conversion from resource tonnage to ore reserve tonnage. This conversion rate appears reasonable given that the extraction rate declines with depth.

The ore reserve grade estimates are derived from the exploration model, not the grade control model and hence represent more reliable PGE grades, to the extent that the original drilling may have been assayed using the more reliable procedure of Pb-collection than that used for grade control and certain phases were assayed using the NiS collection technique. There could still, however, be some bias in the exploration model and hence potential for actual mining grades to exceed those modelled in some areas.

Snowden notes that KPM calculates the grade and tonnage of its remaining ore reserve by depleting the as-mined tonnage and grade as estimated from grade control samples.

If the as-mined grade is less than the ore reserve (established from the exploration resource model) then the net effect is for the grade of the remaining reserve to increase. KPM reports the as-mined grade as 4.95 g/t and their original reserve grade as 5.21 g/t 4E. Consequently, the June 2001 depleted grade is increased.

It is Snowden's opinion that since mining has been carried out in the higher grade area of the mine, the depleted reserve grade should be lower than the pre-mined reserve grade. This discrepancy can arise if either the exploration model over-estimates the actual grade, or the grade control under estimates the actual grade. In Snowden's opinion it is appropriate at this stage to maintain the average seam grade of 5.21 g/t 4E as the basis for calculating ore reserves.

# 3.7 CONVERSION OF SEAM TONNES TO RUN-OF-MINE ORE (ROM)

Table 3.3 summarises the ratio of underground ROM tonnes to seam tonnes for the period July to December 2000 and January to June 2001 (the estimated seam tonnes and ROM tonnes mined for the period July to September 2001 have not been reported by KPM).

For the underground, the ROM to seam ratio reported by KPM in their monthly reports has remained relatively constant at 1.95, compared with the feasibility study, the face sample (grade control) model and survey estimates (assuming an average 20 cm footwall and hangingwall overbreak is mined), which show a ratio of 1.5 to 1.6.

For FY 2001/2002, approximately 256,000 tonnes of waste by-passed the DMS and reported directly to the flotation feed. This is equivalent to 22% dilution in the flotation feed.

In Snowden's opinion, the higher proportion of waste in the DMS feed compared with feasibility can be attributed to:

- a lower percentage of waste being rejected from the blasted rock compared with that proposed in the feasibility study;
- excessive footwall overbreak in some areas due to poor drilling practice, combined with the
  irregular nature of the footwall, which results in a high proportion of footwall dilution bypassing the scalping and the DMS;
- finer fragmentation of the waste parting than allowed for in the feasibility study, which may be due to poor sequencing of blast holes where fuse and igniter cord is used; and
- additional waste mined through potholes.

By comparison, the ratio of open pit ROM tonnes to open pit seam tonnes is 1.18, which indicates that less than 20% dilution has been incurred in the open pits for FY 2001/2002.

The life-of-mine DMS feed grade is calculated to be 2.9 g/t 4E, which is 6% lower than the FY 2000/2001 4E DMS feed grade of 3.11 g/t. It is noted in the feasibility report that 4E seam grades are highest on the Eastern mine (5.93 g/t) and 15% lower on the west (5.07 g/t). In Snowden's opinion, average seam and hence ROM grades will reduce over the life-of-mine as the stoping progresses from east to the west.

Under	ground and open pit productio	Table 3.3 in ROM and seam pro	duction (FY 200	00/2001)
	Item	July to December 2000	January to June 2001	FY July 2000 to June 2001
Underground	Tonnes ROM	909,400	947,500	1,856,900
	Tonnes seam	467,500	486,500	954,000
Open pit	Tonnés ROM	96,300	127,700	224000
	Tonnes seam	77,000	113,000	190000
	DMS feed grade (4E g/t)	3.06	3.16	3.11
Underground	ROM/seam	1.95	1.95	1.95
Open pit	ROM/seam	1.25	1.13	1.18
Average	ROM/seam	1.85	1.79	1.82

#### 3.8 ROM ORE RESERVE

Table 3.4 summarises the conversion of the seam mineral resource to a ROM ore reserve.

Snowden's estimate of the ROM reserve as at 30 June 2001 is 25.1 Mt at 2.89 g/t 4E (2.3 Moz) compared with KPM's life-of-mine schedule of 23.05 Mt at 3.1 g/t 4E (2.3 Moz). Snowden incorporated its revised ROM reserve in the life-of-mine cash flow.

Table 3.4 Snowden's ROM reserve estimate (Ju	ine 2001)	
Item	Mt	4E (g/t)
KPM undepleted seam resource	24.61	5.20
KPM mined seam resource (to June 2001)	2.98	4.85
KPM depleted seam resource (June 2001)	21.63	5.24
KPM undepleted seam reserve	17.40	5.21
KPM mined seam reserve	2.41	4.85
KPM depleted seam reserve (June 2001)	14.99	5.27
Less additional 7% ore loss	13.94	5.27
(for actual potholes and geological loss)		
Less grade adjustment = adjusted seam reserve (Section 4.6)	13.94	5.21
Underground seam reserve (80%)	11.15	5.21
Open pit seam reserve (20%)	2.79	5.21
Underground ROM reserve (95% dilution factor)	21.75	2.67
Open pit ROM reserve (20%) dilution factor)	3.35	4.33
Snowden ROM reserve (June 2001)	25.09	2.89

Table 3.5 summarises KPM's reserve estimation methodology. Table 3.6 is KPM's summary of the resource and reserve estimates for the Kroondal and Waterval Blocks.

Snowden notes that there is potential for KPM's reserve estimate to be over-estimated by approximately 3% as a density value of 3.92 t/m<sup>3</sup> has been used. However, this over-estimate should be offset by improved extraction ratios due to better geotechnical conditions as revised in September 2001. Improved pillar extraction will be incorporated in future models.

#### 3.9 **CONCLUSIONS**

In Snowden's opinion, KPM's reserve estimate is suitable for preliminary long term planning, albeit at a higher ROM to seam ratio of 1.8 and at a lower average life-of-mine grade of 2.9 g/t 4E. However,

the improvement that is likely to arise from increased pillar recoveries does not appear to be adequately factored into the reserve estimate.

Snowden has identified the following issues with respect to the reserve estimate:

- The pre-mining seam ore reserve estimate is in line with the feasibility study in terms of tonnage but is 8% lower in grade. The reason for this difference has not been explained.
- The reserve is not classified and hence does not comply with the SAMREC or JORC Codes.
- There is no KPM documentation to quantify or qualify the factors used by them to translate the resource estimate into reserve.
- Snowden was unable to duplicate the ore reserve estimate and there are numerous, but generally small, discrepancies between Snowden's and KPM's calculations for individual regions and between estimates of mined-out tonnages and grades reported by KPM.
- Possible improvement in extraction rates due to revised geotechnical analysis does not appear
  to have been incorporated into the reserve. These improvements may result in a 6% increase
  in underground reserves. However, this improvement is offset by increased pothole and
  geological losses of 7%.
- KPM's life-of-mine plan contains 9% less tonnes and metal compared with their combined Kroondal and Waterval reserve estimate.
- The absence of a resource block model for Waterval, although the potential to swap the Waterval area for an equivalent area immediately down dip at Kroondal is acknowledged.

			Table 3.5	3.5												$\lceil$
o attouivous	Kroandal Block reserve estimate by region of the modification from resource to are, minima reserve (from MCS)	Kroondal Block reserve estimate by region liftestion from resource to nre, mixing rese	reserv	re estima e to nre	ate by r	egion Tresery	we (from	(SOM)								
qui qui la								(600)								
	Seam		ר	Leader				Main	Main seam			ِ <b>د</b>	der plus	eader plus Main seam	E R	1
	€⊃1A	ьсЕ	dibiw mes2	вегописе	Reserve	7010sì	BGE	Scam width	อวามอละภ์ ลูงการสู	Reserve Conversion	factor	BO4	dibiw mes2	Scanics	Reserve Conversion	101081
Region	m, (,000)	B/t	CIII	₹	M	 %	ວ 1∕8	e m	Mt Mt		* *	B/I	E.	Mt Mc		
Large pothole in East mine excluded	961					_										1
5m oxidised zone excluding 200m blasting restriction	166	2,98	78	0.19		8	5.77		48			1.98		99.		%
5m oxidised zone within 200m blasting restriction	61	2.81	27	0.02		%	5.59		50.			1.76		70		%
5-25m open cut excluding 200m blasting restriction	852	3.02	73	0.89	0.77	87%	5.87	71 2	2.35 2.	2.03 8	%98	5.08	97	3.25 2	2.81 8	%98
5-25m open pit within 200m blasting restriction	65	2.86	11	0.07		%	5.88		.18			5.04				%
Crown Pillar	===	2.96	23	0.12		<u>જ</u>	5.96		.33			5.15		.46		%
Under Waterval Village mining restriction (50% extraction)	165	2.70	28	0.18	0.08	44%	5.46			`		1.70		_	_	2%
Crown Pillar to 90m area (89.9% extraction)	2,234	7.96	11	2.30	[.7	74%	6.10		-	•		5.27				%
90-120m area (87.8 extraction)	96	2.96	25	1.01	0.80	3%6	6.21			2.41 7		5.40		_	3.21 7	%6
120-150m area (85.7 extraction)	517	2.97	25	0.43	0.33	77%	6.05			•		5.28			_	%
Total Kroondal resource/reserve	5,095	2.96	27	5.22	3.70	71%	6.04	74 14	14.70 10	10.50 7	71%	5.23	51 001	19.84 14		%

	•		-		<u></u>	Table 3.6	9							
₹	res Figures	K.FM resource and reserve summary (June 2001) Kroondal and Waterval Higeks	ina rest	erve su	mmary	(June	<b>7</b> 00 <b>7)</b> F	roond	al and	Watery	'#  15 0¢	<b>8</b>		
		22	Kroondal Block	Block				>	Valerva	Waterval Block			KPM	Σ
	Ope	Opencast Underground	Underg	punor	Total	la l	Open	Opencast Underground	Underg	tround	Total	le.	Total	a)
	Lead	Leader &	Lead	Leader &	Lead	Leader &	Lead	Leader &	Egg	Leader &	Leader &	3 &	Lead	cader &
	Main	Main Seam Main Seam	Main	Seam		Main Seam	Main	Seam	Main	Main Seam Main Seam Main Seam	Main !	Seam	Main Seam	Seam
	Mī	1/8	M	g/t Mt	Mt	But	Mi	)/3	ž	B/t	ž	1/8	ž	)/ä
Total Resource	4,22	5.06	5.06 15.98	5.28	5.28 20.20 5.23	5.23		0.79 5.04 3.62	3.62	5.02	4.41	5.02 24.61	24.61	5.20
Mined out	0.82	- 1	4.85 2.16		4.85 2.98	4.85	0.00	5.04	0.00	5.05	0.00		5.02 2.98	4.85
Mineable Resource	3.40		5.11 13.82		5.35 17.22	5.30	0.79	5.04 3.62	3.62	5.02	4.41	5.02	5.02 21.63	5.24
Total Reserve	2.81		5.08 11.62	5.29			0.49		5.05 2.49		2.98		5.02 17.40	5.21
Mined out	0.67	- 1	4.85 1.75		4.85 2.41	4.85	0.00	5.05	0.00	5.02	0.00	5.03	2.41	4.85
Mineable Reserve	2.14	5.15	5.15 9.87 5.37 12.01 5.33 0.49 5.05 2.49	5.37	12.01	5.33	0.49	5.05	2.49	5.02	5.02 2.98		5.02 14.99	5.27

# 4.0 MINING

#### 4.1 INSPECTION OF UNDERGROUND WORKINGS

Snowden inspected the underground workings in both the Eastern and Central mines and inspected a number of faces being developed using either manual pneumatic rock drills or a single boom jumbo. The following observations were made:

#### 4.1.1 Safety

- There was no formal induction for visitors going underground to advise them of the potential hazards, however, the operation of the self-rescuer was explained and all visitors remained under the close supervision of KPM's guide for the full duration of the visit.
- Transport into the mine during the site visits was by a modified surface 4WD vehicle. No overhead protection is provided in this vehicle. At a number of points along the access routes, headroom is very limited, which poses a hazard to passengers in the vehicle. However, the vehicle was operated at low speeds in areas of restricted head room.
- It was observed that an up-dip face was being drilled using pneumatic rockdrills while the adjacent strike face nearby was charged with explosives. Visitors were allowed in close proximity to a number of charged faces, which had not been barricaded to prevent entry. Snowden understands that a working procedure has now been issued to the mining contractor Cementation to the effect that charging will not be done within 5 m of drilling operations (Reg 8.10.21).
- The mining faces in the Central mine are well advanced from the original decline and a refuge bay was being established in one area between two pillars closer to the face. The refuge bay will be maintained under positive pressure using compressed air, stocked with a supply of food and water and equipped with a toilet.
- It was noted that the compressed air supply was reticulated along the strike conveyor. In the event of a fire on the conveyor, it is possible that the gaskets on the compressed air line may burn. This would result in toxic fumes entering the refuge bay followed by the compressed air supply failing. It is recommended that the compressed air be reticulated to the refuge bay by a route independent of the conveyors or any combustible material (ideally via a borehole directly from surface).
- Fires on diesel engines and conveyors can be a major risk underground. The dip and strike conveyors are equipped with fire hose reels at regular intervals. Automatically activated sprays are not installed on the conveyors. An automatic system should be considered as intermittent monitoring of the 7 km conveyors may not be sufficient to detect fires at the early stage when fire hoses would be most efficient. All underground mobile equipment is equipped with hand held fire extinguishers and a manually activated deluge system over the engine.
- Tipping and cleaning at the standard tipping points is slow, as loaders are required to feed the conveyor at a relatively slow rate in order to avoid over-loading the belt. There is limited clearance between the top of the loader and the hangingwall as the loader enters the tip. This may cause problems, especially if the footwall is not kept clean and the loader runs over broken rocks.
- Safety statistics and issues will be routinely reported in monthly reports to the Management Executive and safety will be KPM's foremost key performance indicator.
- In the manual rock drill sections, drilling and loading activities are not carried out concurrently in the same areas. This is done to reduce the potential for conflict between large numbers of employees and the loaders.

#### 4.1.2 General conditions and observations

A number of single boom, electric hydraulic jumbos have been introduced into the mine. The
configuration of these jumbos, with an extendable boom, is well suited for the stope geometry
at Kroondal. These rigs should allow for increased productivity and lower dilution due to the

longer length of blasthole drilled, faster penetration rates and improved accuracy of drilling as it is possible to drill near parallel holes close to the hangingwall and footwall contacts.

- Overall ground conditions are good, especially in the East mine where hangingwall conditions have allowed 14 m wide bords to be established.
- In most areas of the mine, sweeping of the footwall has not been carried out. Accumulations of fines were noted in both mining areas. Snowden observed one area where a trial sweeping programme had been implemented, however a decision to implement sweeping on a routine basis had not been taken at the time of the site visit. Snowden understands that sweepings will be included in the new contract that is currently being negotiated.
- Although the mine is semi-mechanised, there appears to be a large number of personnel employed underground, especially in the vicinity of the loading points and on the strike conveyor belts. Snowden understands that belt maintenance personnel were carrying out routine maintenance in the vicinity of the loading point at the time of the visit.
- A trial of a vibrating feeder was observed, which will improve load-haul-dump (LHD) efficiencies if implemented throughout the mine.
- In general, the drilling of blastholes appears to be well planned. Holes are drilled in the UG2 reef to minimise fragmentation of the waste parting. A row of holes can be drilled in the parting where the width of the parting is greater than 1 m.
- Rock drill operators have difficulty in drilling holes parallel with the hangingwall and footwall, which results in excessive overbreak in some areas.
- In one jumbo face, it was noted that a number of blastholes had been drilled and charged with explosives up to 20 cm in the footwall of the Main seam, which will result in the generation of excess pegmatite fines that will bypass the DMS feed. At the time of the visit, this substandard act had not been corrected by the contractor's supervisors, which demonstrates a need for continuous monitoring and ongoing training of the drill and blast crews by KPM and Cementation staff.
- A number of small potholes have been successfully mined. A low profile, remote control
  loader was being commissioned on surface. This unit will be trialed in particularly low areas
  and areas of poor ground conditions in order to increase extraction ratios.
- Open pit mining is being carried out using hydraulic excavators and trucks. Mining is very clean with less than 20% waste being included in the DMS feed.

#### 4.2 UNDERGROUND MINING METHOD DESIGN PARAMETERS

Underground mining of the Kroondal Block is currently carried out from two separate operations referred to as the East mine and the Central mine. Each mine is accessed via a decline from surface (Figures 4.1 and 4.2).

The mining method in the Kroondal Block is based on a room and pillar stoping system mining the Leader seam, parting and Main seam as a single unit. Mine extraction is carried out in a "top-down" sequence. The current layout for the East mine is for 14 m wide bords and 6.5 m square pillars being mined along strike. On the Central mine, the layout is for 10 m wide bords and 5.5 m wide pillars mined along strike. The size of the pillars will be increased with depth. The distance between the East and Central mines is approximately 2.2 km, which will limit the span of the strike conveyors to approximately 1 km. A third mining area, the West mine, will be established in 2004/2005 as the eastern mining areas are depleted.

Pneumatic rock drills are used to drill blast holes and the underground labour compliment includes 160 rock drill operators. The mining contractor has recently introduced four single boom jumbos into the mine and it is planned to increase the number of jumbos to six in 2002 and to eight in 2003. Each jumbo is operated by a single operator plus assistant, and replaces a pneumatic rock drill crew of approximately 18 persons. Blasting is carried out using prill explosive, which is initiated using fuses and igniter cord.

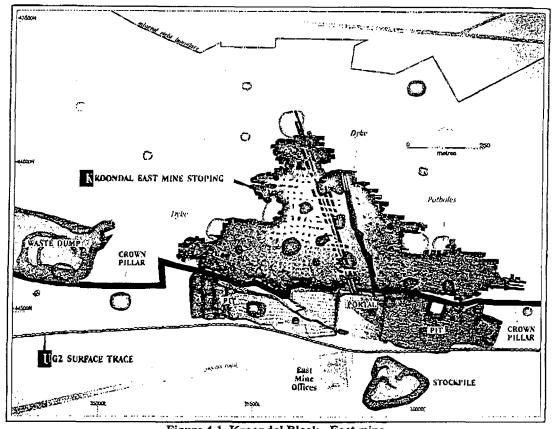
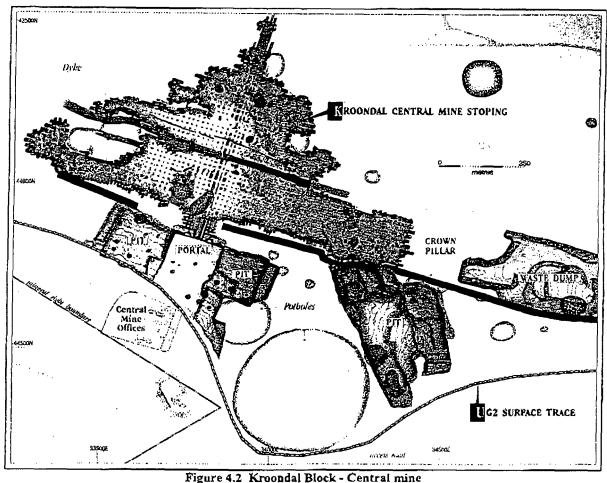


Figure 4.1 Kroondal Block - East mine
Showing the UG2 reef surface trace, extent of open pit mining, the crown pillar and the extent of underground stoping. Also shown are known dykes and potholes.

Aardvark 4.2 m<sup>3</sup> LHD units are used to muck the face. These units have an overall height of 1.4 m and a bucket capacity of 4.2 m<sup>3</sup> and appear well suited for the task. A lower profile loader (RHAM 1200) was being commissioned during Snowden's site visit. This loader can be operated on remote control, which removes the need for additional clearance needed for the operator to work safely, and allows the machine to operate in very low stope widths.

A total of 26 production loaders are used at the East and Central mines for face mucking. The blasted material is tipped onto a strike conveyor and transported to a series of dip conveyors, which take the broken ore to surface. These dip conveyors are installed down the dip of the orebody and are 280 m long, with a lift of 48.6 m, 1,050 mm wide running at 1.7 m/sec. These conveyors, which are designed for an operating capacity of 489 tph are fed by east and west strike conveyors. Each mine is currently laid out for five strike conveyors on either side of the dip conveyor. The strike conveyors are designed for a final length of 1,000 m with 1,050 mm belts running at 0.8 m/sec and are designed for an operating capacity of 200 tph. There is significant redundancy in this layout in that the required production can be conveyed with only two of the five conveyors running. The belts are extended along strike to ensure that the LHDs do not have to tram in excess of 75 m.

Strike conveyors are spaced approximately 75 m apart down dip and support five or six bords. To date, 10 strike conveyors have been installed in the East mine totalling 2,131 m overall. The 10 strike conveyors in the Central mine total 3,345 m.



Showing the UG2 reef surface trace, extent of the open pit mining, the crown pillar and the extent of underground stoping. Also shown are known dykes and potholes.

Three dip conveyors have been installed in the East mine over a dip length of 580 m and approximately 300 m of conveyor decline remains to be developed to reach the northern boundary. At the Central mine 714 m of dip conveyor decline has been installed and approximately 300 m of dip conveyor remains to be developed to reach the northern boundary. Dip conveyors will be established in increments down dip to establish new mining faces as the upper level strike conveyors reach their mining limits.

Selective blasting of the UG2 reef results in the parting being preferentially blasted at a large lump size. Waste material (+300 mm) is scalped off at the loading bin at the head of the strike conveyor, which is then stowed (or backpacked) into the worked-out areas. A second screening arrangement has been installed on the surface belts. Here, a 150 mm grizzly is used to separate the larger material, which is then hand sorted to identify any seam, which is returned to the belt while waste is discarded to a surface dump. The remaining ore plus waste material, or run-of-mine ore (ROM) is then crushed. Dense Media Separation (DMS) is then used to reject the remaining waste material from the seam.

The service water associated with drilling and dust suppression operations is the major source of water in the underground mine. There is a negligible inflow of fissure water into the underground mine. There is also a low risk of surface flooding impacting adversely on underground operations due to the bunds, drains and pumps installed at each portal. The surface topography is relatively flat, and there is little risk from major surface inundation via uncapped exploration drillholes. KPM reports that the total inflow into each mine is approximately 200 m<sup>3</sup>/day.

The pumping system installed underground is a simple but effective arrangement with a primary gri trap (cleaned by LHD) and a small underground pump sump. The dirty water is pumped to surfacusing Envirotech 5ME pumps (two pumps in series with a 100mm delivery). Low lift vertical spindle pumps are used to pump water from low points into the underground pump sump. On surface the water is deposited in settling ponds, with the overflow being returned underground as service water Excess water is discharged in the surface water system.

The main ventilation system comprises 4 x 225 kW Howden fans at each mine. These fans are installed in the portal on either side of the dip conveyors. Air intakes via the main travelling way or either side of the conveyors is then directed to the face using brattices and barricades. Where necessary, secondary ventilation is provided using smaller 22 kW fans and ducting. KPM drilled two exhaust rises in November 2001 to ventilate the lower workings. Each rise was fitted with a single 225 kW fan. Ventilation design is considered to be relatively simple due the shallow nature of the operations and the regular layout of the mine.

Compressed air is supplied by five Atlas Copco GA250 compressors at each mine and is reticulated along each conveyor using steel piping with two main lines per mine. Compressors are located adjacent to each portal in order to minimise the length of piping installed on the surface.

# 4.2.1 Underground mining contract

The mining contract is based on an average payment of R54.04/ROMO tonne, escalated on a rise and fall formula. A ROMO tonne is defined as 100% of seam plus 50% of waste reporting to the crusher. The contractor is responsible for the scalping off of the remaining 50% of waste material in blasted ore (some additional allowance is paid for difficult mining in areas such as potholes).

In the past, the ROMO tonnage was calculated on a month by month basis based on survey measurements. However, the mining contractor is now being paid on the basis of 5.64 ROMO tonnes per m<sup>2</sup>. This value appears to be appropriate when compared with the feasibility study estimates for the Central and East mines (5.89 and 5.43 ROM t/m<sup>2</sup> respectively), face samples (6.10 and 5.21 ROM t/m<sup>2</sup> respectively) and survey (5.82 and 4.97 ROM t/m<sup>2</sup> respectively). Analysis of the composition of ROM is summarised in Table 4.1, Table 4.2 and Table 4.3. KPM does not routinely report the width of footwall overbreak. For analysis of the sampling and survey measurements, Snowden has assumed that hangingwall and footwall overbreak is 20 cm, the seam SG is 3.92 and that the waste SG is 3.0.

	Table 4.1
77	dana Dariera ferribilia, sanda
WLooungai Lisi	tinum Project feasibility study
Average seam wid	th, SG and ROM estimates per m2

		Ce	ntral			E	ast	
Area	Width (m)	SG	Blasted tonnes	ROM tonnes	Width (m)	SG	Blasted tonnes	ROM tonnes
Leader	0.27	3.8	1.04	1.04	0.21	3.8	0.81	0.81
Parting	0.97	3.0	2.91	1.46	0.89	3.0	2.67	1.33
Main	0.77	3.8	2.91	2.91	0.70	3.8	2.64	2.64
Pegmatite	0.32	3.0	0.96	0.48	0.43	3.0	1.28	0.64
Total	2.33		7.83	5.89	2.23		7.41	5.43

In the feasibility study, the ratio of ROM tonnes to seam tonnes is 1.44 and 1.40 for the Central and East mines respectively.



# **FACSIMILE TRANSMISSION**

Date:

9 April 2002

To:

Office of International Corporation Finance

Company:

Securities and Exchange Commission

Fax

0011 1 202 942 9624

From:

Melissa Sturgess

Number of Pages:

53

(Including this cover page)

Re:

Aquarius Platinum Limited - File # 82-5097

Part Four

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> (incorporated in Bermuda - Registration No: EC26290) CLARENDON HOUSE, 2 CHURCH STREET, HAMILTON PO BOX HM666, HAMILTON HMCX, BERMUDA

EMAIL: info@aquariusplatinum.com WEB SITE: www.aquariusplatinum.com



19 March 2002

Securities and Exchange Commission
Division of Corporate Finance
Office of International Corporation Finance
450 Fifth Street, N.W.
Washington, D.C. 20549

Re: Aquarius Platinum Limited - File #82-5097

Dear Ladies and Gentlemen.

We are furnishing herewith pursuant to Rule 12g3-2(b)(1)(i) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") the following additional documents that the Aquarius Platinum Limited (the "Company") has made public, distributed or filed with the Australian Stock Exchange Limited (the "ASX") the Australian Securities and Investments Commission (the "ASIC") the Alternative Investment Market ("AIM") of the London Stock Exchange ("LSE") or the Registrar of Companies of Bermuda since 4 May 2001.

	9 April 2002		Notice of Meeting and Explanatory Memorandum
1		 1 47 00 for character parts	110 to 01 mile the transfer of

The attached documents are being furnished with the understanding that they will not be deemed "filed" with the Securities and Exchange Commission or otherwise subject to the liabilities of Section 18 of the Exchange Act, and that neither this letter nor the furnishing of such documents shall constitute an admission for any purpose that the Company is subject to the Exchange Act.

If you have any questions or comments please call the undersigned at +618 9485 2111.

Very truly yours

**AQUARIUS PLATINUM LIMITED** 

MELISSA STURGESS

(incorporated in Bermuda – Registration No: EC26290)

CLARENDON HOUSE, 2 CHURCH STREET, HAMILTON

PO BOX HM666, HAMILTON HMCX, BERMUDA

EMAIL: info@aquariusplatinum.com WEB SITE: www.aquariusplatinum.com

0.03

5.09

0.06 6.23

HW & FW

Total

0.20

2.31

3.00

0.60

8.23

	Kroondal				z th measurem ROM estimat		o June 2001)	
		entral	T		East			
Area	Width (m)	SG	Blasted tonnes	ROM tonnes	Width (m)	SG	Blasted tonnes	ROM tonnes
Leader	0.31	3.92	1.22	1.22	0.28	3.80	1.06	1.06
Parting	1.12	3.00	3.36	1.68	0.74	3.00	2.22	1.11
Main	0.78	3.92	3.06	3.06	0.76	3.80	2.89	2.89

Face sampling indicates that the ratio of ROM tonnes to seam tonnes is 1.46 and 1.29 for the Central and East mines respectively.

0.30

1.88

0.20

0.30

6,25

	Kroondal				3 th measurem ROM estimat		o June 2001)	
		С	entral				East	
Area	Width (m)	SG	Blasted tonnes	ROM tonnes	Width (m)	SG	Blasted tonnes	ROM tonnes
Leader	0.29	3.92	1.14	1.14	0.25	3.80	0.95	0.95
Parting	1.09	3.00	3.27	1.64	0.78	3.00	2.34	1.17
Main	0.74	3.92	2.90	2.90	0.71	3.80	2.70	2.70
HW & FW	0.20	3.00	0.60	0.30	0.20	3.00	0.60	0.30
Total	2.22		7.91	5.97	1.84		6.59	5.12

Survey measurements show that the calculated ratio of ROM tonnes to seam tonnes is 1.48 and 1.40 for the Central and East mines respectively (Table 4.3). This compares with an actual ratio, reported by KPM, of 1.95 for FY 2000/2001. The higher ratio is due to larger volume of waste being generated from the hangingwall and footwall and/or the finer fragmentation of the waste leading to less efficient scalping by the mining contractor.

#### 4.3 ROCK MECHANICS

### 4.3.1 Site visit

Dr Mike Roberts from the CSIR carried out an underground visit to inspect the pillars to determine if any signs of instability were present. During the site visit no instability was observed and the pillars were functioning as the design required. The pillars were well cut to the required pattern and sizes.

The support in the stopes consists of 1.5 m long end anchored rockbolts spaced at 3.0 by 2.0 m. The installation quality observed was good. In the conveyor declines, the rockbolts are full column resin grouted and spaced at 1.5 by 2.0 m. A monitoring programme is under way in one of the stopes where load cells are used to determine the load on the rockbolts. The one rockbolt observed was loaded to 60 kN.

It was observed in the drives that occasional roof fallouts had occurred in the past, which were due to the presence of cooling dome structures. These are lens shaped structures of several metres length and height in the roof. They are difficult to detect and it requires a practiced eye to spot the curved joints that make up the perimeter of the cooling dome. The mine's rock mechanics engineer has trained production personnel to identify these structures. Once identified, they are supported using 4 to 6 m long cable anchors. Alternatively, pillars are cut to support them, or they are blasted down and cable anchors are installed at the brows. Cooling domes pose the main rock fall hazard in the underground mine. Rock falls of this nature have occurred in the past and are likely to occur in the future if undetected. However, the mine has sufficient production flexibility for such an incident not to significantly affect production in the short to medium term.

## 4.3.2 Evaluation of pillar stability

Mr D Spencer of Spencer Rock Mechanics Consultancy (Spencer) provides rock engineering services to the mine. Spencer uses a numerical modelling code based on elastic theory to determine the expected pillar stresses for the various depths of mining. The pillar strengths are determined by the method of Hedley and Grant. The 'k' value used is equivalent to one third of the uniaxial compressive strength (UCS) and as a result the calculated pillar strength is probably conservative, in that the calculated pillar strengths are less than the actual pillar strengths. The pillar design uses a standard engineering approach and is adequate to ensure mine stability. It is required that the calculated pillar strength exceeds the expected pillar stress by a factor of safety (FOS) of 1.5. In Table 4.4, these parameters are shown with increasing depth. The percentage extraction reduces with depth as pillar sizes increase in order to keep the FOS at 1.5. Some FOS are in excess of 1.5, and this may indicate scope to increase extraction in these areas, albeit marginally.

A number of potholes are present in this orebody. They can be many metres wide and contribute towards stability of the mine by acting as large pillars during the mining of this ore body. This additional stabilising effect is not taken into account when calculating the FOS for the pillars making up the bord and pillar system. Although a localised increase in extraction could take place in the vicinity of potholes, the position and size of potholes are not known ahead of mining and therefore cannot be incorporated in the pillar design. Once mining has reached the boundaries of the property, all pothole positions will be known and their contribution to mine stability could be assessed with a view to pillar robbing on retreat. KPM is currently assessing the use of surface seismics as a method of identifying potholes.

The general impression is that the pillar layout is conservative given that 'k' = 1/3 UCS, some FOS are greater than 1.5 and the pothole contribution to stability has not been taken into account.

#### 4.3.3 Rock mechanics monitoring and reporting.

Mr D Spencer visits the mine one day a week while his strata control officer visits the mine 2.5 days a week. When on site they are either underground or attending planning meetings.

Rock engineering recommendations are sent to KPM's General Manager (Operations) who then adds his comments and issues the recommendations as instructions to the mining contractor. Mr Spencer or his strata control officer will follow-up on the contractor's compliance with these instructions.

#### 4.3.4 Backfill

Routine backfilling is not carried out at KPM's operation. The oversized waste parting is scalped off on a grizzly at the loading point and "backpacked" into the mined out void. This backpacked waste provides no support function in the mine.

## 4.4 OPEN PIT MINING

Open pit mining is being carried out at both the East and the Central mines from surface to approximately 25 mBS. The near surface material is stripped and stockpiled adjacent to the highwall position. Mining is carried out in 30 m wide increments along strike. Conventional drill and blast

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methods are used to blast the waste rock, which is excavated using conventional hydraulic excavators and dump trucks. Waste material is dumped into the mined-out pit behind the active working area.

The seam is exposed by scraping back the immediate hangingwall using the excavator. The ore may require secondary blasting. It is then loaded into trucks and taken to the open pit tip. The tip has a 300 mm static grizzly and a mobile rock breaker. The tipped ore is fed into the primary jaw crusher, from where the crushed ore is conveyed to the plant.

The mine budgets on 20% of the seam coming from the open pit mine, and is blended with the underground ore. A maximum percentage of 30% of open pit seam can be processed at any one time as higher levels result in excessive levels of chromite in the concentrate.

	Selected pilla	Table r requirements fo		Central mine	s		
Depth (m)	Virgin Stress	Pillar Strength	Pillar Load	Factor of	Percentage		
	(MPa)	(MPa)	(MPa)	Safety	Extraction (%)		
<del></del>		East n	nine				
40	1.18	40.79	17.61	2.3	93.3		
60	1.77	44.12	19.30	2.3	90.9		
90	2.65	46.88	22.72	2.1	88.3		
120	3.53	48.85	28.26	1.7	87.5		
140	4.12	50.12	29.76	1.7	86.2		
155	4.56	51.05	30.61	1.7	85.1		
170	5.00	52.56	32.71	1.6	84.7		
185	5.44	53.74	32.57	1.7	83.3		
200	5.89	54.61	33.02	1.7	82.2		
215	6.33	54.61	35.49	1.5	82.2		
Central mine							
60	1.77	36.89	15.89	2.3	88.9		
90	2.65	38.34	23.25	1.6	88.6		
100	2.94	39.39	23.19	1.7	87.3		
110	3.24	40.07	23.81	1.7	86.4		
120	3.53	41.08	26.55	1.5	86.7		
125	3.68	42.06	25.16	1.7	85.4		
135	3.97	42.06	27.18	1.5	85.4		
135	3.97	42.38	26.36	1.6	84.9		
145	4.27	43.02	26.67	1.6	84.0		
155	4.56	45.18	26.28	1.7	82.6		
180	5.30	46.07	28.21	1.6	81.2		
190	5.59	46.37	29.03	1.6	80.7		
200	5.89	46.66	29.80	1.6	80.2		
215	6.33	46.66	32.03	1.5	80.2		

The open pit mine has the capacity to provide immediate additional capacity in the event of production problems in either the East or Central underground mines.

Approximately 20% additional waste is mined with the seam. A very high seam recovery was observed.

#### 4.5 LIFE OF MINE PLAN

KPM presented Snowden with a number of schedules and life-of-mine plans as follows:

- The KPM 2001/2002 budget (Table 4.5), which shows a total of 1.7 Mt of searn at 5.3 g/t 4E, made up of 1.3 Mt from underground, 0.33 Mt from open pits and the remainder from stockpiles. The ROM tonne/seam tonne ratio is 1.82 and 1.50 for underground and open pit ore respectively.
- The KPM business plan (Table 4.6) shows a total life-of-mine production of 23.8 Mt of ROM at a 4E grade of 3.10 g/t. 10% of the seam tonnes (7% of ROM tonnes) will be mined by open pit and 90% of seam tonnes (93% ROM tonnes) will be mined from underground. Snowden was advised by KPM that this schedule best reflects its current strategy. The change in the percentage of open pit reef mined from 20% to 10% is due to a recent decision to limit the depth of the pits to 25 m, compared with depths of up to 65 m on the western portion of the Kroondal Block which was used to calculate open pit "reserves". Consequently, the life-of-mine reef tonnes scheduled will be marginally lower when compared with the reserve estimate due to lower extraction rates in the underground. Two production schedules were prepared in July and October 2001. These schedules were not considered further.

Figure 4.3 shows the general sequencing of the open pit and underground mining at KPM and shows the following sequence:

- Mining is currently focused in the central and eastern parts of the Kroondal Block.
- The eastern faces of the East mine will start to strip out along the boundary during 2004/2005 and mining will be completed in this area by June 2006.
- The holing between the East and Central mines will be effected during 2004/2005 and these faces will be generally mined out by June 2006.
- Stripping of the West mine boxcut and portal commences in 2002/2003. An underground conveyor drive will be established from the Central mine dip conveyors to the West mine during 2003/2004 and stoping will commence in the following year. The west face of the Central mine stops mid way between the West and East mines by June 2006.
- After June 2006, the bulk of the mining operations will be focused on the West mine in the Kroondal Block and the Waterval mine in the Waterval Block. The Waterval mine will be established in 2006/2007 and mined out over a 2.5 year period. Snowden notes that no allowance has been made by KPM in its business plan for the additional capital required to establish either the West mine or the Waterval mine. Nor has any allowance has been made in KPM's business plan for higher transport costs associated with trucking ore from Waterval to the KPM plant.

The ROM/seam tonne ratio applied is 1.74 for underground (which is low compared with 2000/2001 actual of 1.95) and 1.26 for open pit, (which is high compared with 2000/2001 actual of 1.18).

In Snowden's opinion, the seam tonnage targets shown in KPM's production schedule will be achievable up to June 2006 as face is available underground and in the open pits. Together these operations provide the flexibility necessary to achieve the planned level of production. The ROM/seam tonnage from underground is likely to be higher than 1.74 unless significant improvement is made in drill and blast practice to increase the fragmentation size of the waste parting and to minimise dilution. After June 2006 the production targets will become more difficult to achieve for the following reasons:

• Open pit mining stops in June 2006 and underground production is ramped from 1.5 Mt to 1.8 Mt of ROM.

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- Statutory limitations as a consequence of mining under the Waterval village, combined with the irregular shape of the northern boundary, will result in fewer faces being available at any time.
- The Waterval Block has a narrow strike width (300 to 400 m) and extends from outcrop to 320 mBS. In this case, each mining face will have an effective life of 12 months or less. The decline will need to be developed at a vertical advance rate of 75 to 100 m per year in order to maintain production.
- Due to the limited number of faces available at any one time at Waterval, production may be reduced significantly when potholes are intersected.

Snowden recognises that the opportunity may arise for KPM to swap the Waterval ground for ar equivalent area down-dip from the Kroondal boundary. Also, it is understood that it is very likely that the ground west of Waterval village will be exchanged with Anglo Platinum in order to straighten up the northern boundary at Kroondal. In these cases, it is likely that the target production schedules would be achieved.

Snowden revised KPM's life-of-mine plan and made the following changes:

- Production is based on mining 13.9 Mt of seam at a grade of 5.10 g/t 4E over the life-ofmine.
- Production is designed to produce 1.8 Mt of seam per year where possible.
- ROM/seam ratio of 1.74 was used to calculate to ROMO tonnage paid to the underground mining contractor. A ratio of 1.2 was used to calculate ROMO tonnes for the open pit.
- A ROM/seam ratio of 1.95 and 1.20 were used to calculate underground and open pit DMS feed respectively.
- The average seam grade was reduced from 5.27 g/t 4E to 5.20 g/t 4E, and the ROM grade from 3.1 g/t 4E to 2.88 g/t 4E.
- Annual grades were adjusted to reflect higher grade material being mined earlier in the mine's life, and lower grades in later years.
- Underground production has not been ramped to 1.8 Mt per year to account for the depletion of open pit reserves, but maintained at 1.5 Mt per year to 2007, and then 1.3 Mt in 2008 and 1.1 Mt in 2009.

Table 4.7 summarises the production scheduled by Snowden.

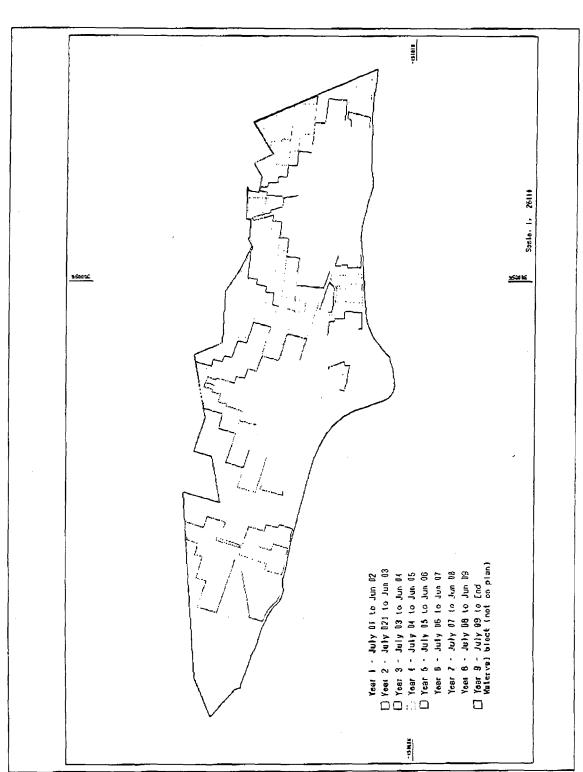


Figure 4.3 Life-of-mine schedule, Kroondal Block

						Table 4.5							
					KPM 20(	KPM 2001/2002 schedule	chedule						
	JUL	AUG	SEP	DCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	N.S.	Total
ROM													
Underground (t) 185,000	185,000	197,000	216,000	197,000		203,000 197,000	190,000	203,000	183,000	190,000	197,000	203,000	2,361,000
Open pit (t)	18,000	35,000	35,000	45,000	47,000	45,000	44,000	47,000	43,000	44,000	45,000	47,000	495,000
Total (t)	Total (t) 203,000	232,000	251,000	242,000	250,000	242,000	234,000	250,000	226,000	234,000	242,000	250,000	2,856,000
Seam													
Underground (t) 100,000	100,000	000'001	000'001	000'001	100,000	106,492	112,000	120,000	108,000	112,000	116,000	120,000	1,294,492
Open pit (t)	15,000	24,000	30,000	30,000	30,000	29,000	28,000	30,000	27,000	28,000	29,000	30,000	330,000
UG stockpile (t)		8,000	20,000	15,000	5,000	805'6							57,508
Open pit stockpile (t)		6,000			8,000								14,000
R/P stockpile (t)					7,000								7,000
Total seam (t)	115,000	138,000	150,000	145,000	150,000	145,000	140,000	150,000		135,000 140,000	145,000	150,000	1,703,000
Seam grade (g/t)													
Pt	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17
Pd	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53
R	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Au	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
4E (gA	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	. 5.3	5.3	5.3	5.3	5.3

			T	Table 4.6					
		KPM lif	e-of-mine sc	hedule from	KPM life-of-mine schedule from business plan	=			
Financial Year ending	2002	2003	2004	2002	2006	2007	2008	2009	Total
Open pit seam tonnes (kt)	330	300	300	300	300				1.530
Open pit ROM tonnes (kt)	495	360	360	360	360				1,935
Underground seam tonnes (kt)	1,294	1,560	1,560	1,560	1,560	1,560	1,800	1,800	12,694
Underground ROM tonnes (kt)	2,361	2,712	2,712	2,712	2,712	2,712	3,000	3,000	21.921
Total seam tonnes (kt)	1,703	1,860	1,860	1,860	1,860	1,560	1,800	1.800	14.303
Total ROM tonnes (kt)	2,856	3,072	3,072	3,072	3,072	2,712	3,000	3,000	23.856
Seam grade									
Pr (g/t)	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17
(1/8) pd	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53
Rh (g/t)	95.0	95.0	95.0	95.0	0.56	0.56	0.56	0.56	95.0
Au (g/t)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
4E (g/t)	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.30
ROM grade									
Pt (g/t)	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
Pd (g/t)	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Rh (g/t)	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Au (g/t)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
4E (g/1)	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10	3.10

				Table 4.7	6.1					
			Snowden li	fe-of-mine pı	Snowden life-of-mine production schedule	edule				
Financial Year ending	2002	2003	2004	2002	2006	2007	2008	2009	2010	Total
Open pit seam tonnes (kt)	330	300	300	300	300	0	0	0	0	1.530
Open pit ROM tonnes (kt)	396	360	360	360	360	0	0	0	0	1.935
Underground seam tonnes (kt)	1,294	1,560	1,560	1,560	1,560	1,560	1,360	080'1	200	12.414
Underground ROM tonnes (kt)	2,389	2,880	2,880	2,880	2,880	2,880	2,366	1.879	369	22.916
Total seam tonnes (kt)	1,624	1,860	1,860	1,860	1,860	1,560	1,560	1.560	200	13 044
Total ROM tonnes (kt)	2,785	3,240	3,240	3,240	3,240	2,880	2,880	2.880	692	24.752
Seam grade										70162
Pt (g/t)	3.34	3.26	3.18	3.09	3.01	2.93	2.85	2.77	2.69	3.06
Pd (g/t)	19.1	1.59	1.54	1.50	1.46	1.42	1.38	1.34	1.30	1.48
Rh (g/t)	0.59	0.58	95.0	0.55	0.53	0.52	0.50	0.49	0.48	0.54
Aυ (g/t)	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.04
4E (g/t)	5.59	5.45	5.31	5.18	5.04	4.90	4.76	4.63	4.49	\$.10
ROM grade										
Pt (g/t)	1.95	1.87	1.82	1.78	1.73	1.59	1.54	1.50	1.45	1.72
Pd (g/t)	0.94	0.90	0.88	98.0	0.84	0.77	0.75	0.72	0.70	0.83
Rh (g/t)	0.35	0.33	0.32	0.31	0.31	0.28	0.27	0.27	0.26	0.31
Au (g/t)	0.02	0.03	0.02	0.02	0.05	0.02	0.02	0.02	0.03	0.02
4E (g/1)	3.26	3.13	3.05	2.97	2.89	2.65	2.58	2.51	2.43	2.88

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# 5.0 METALLURGICAL PROCESSING

#### 5.1 INTRODUCTION

This section summarises the findings from the review of KPM's metallurgy and process engineering by Mr G Cunningham, Principal Process Engineer of Tumberry Projects, Johannesburg.

The process flow developed for KPM is appropriate for the orebody and the mining methods employed, namely underground mining and open pit mining. As previously noted in this report, a waste parting separates the two payable chromitite seams within the UG2 reef. This waste is more competent than the seam and has different processing characteristics. Fragmentation during blasting is coarse for the waste, and this property allows initial coarse size segregation to be applied in the stopes as well as on the surface with screening followed by manual chromitite picking. The waste that is too small to be practically and efficiently screened is also of a lower rock density than the seam, so lending itself to rejection by a Dense Media Separation (DMS) plant.

The DMS plant at KPM was a novel installation in the platinum industry but is standard technology in other industries such as coal and chromite mining and processing. This plant has enabled bulk-mining methods to be employed at KPM with a much smaller mill and recovery plant than would otherwise be needed.

The plant has recently been upgraded (June 2001) to include a natural fines flotation plant at the DMS, a ball mill regrind section and secondary roughing and cleaning sections. This description of operation details the current processing plant.

The plant has been designed for a life in excess of eight years and it is expected that it may be required to be operational for a total of 13 years.

### 5.2 SAMPLING ANALYSIS & METAL ACCOUNTING

The sampling of the process streams and the analysis and interpretation of the results generated is discussed in this section of the report.

# 5.2.1 Process sampling

Plant sampling is conducted using:

- harmmer type cross belt samplers for fine ore and DMS floats;
- cross stream primary pulp samplers where appropriate;
- primary pipe samplers for internal plant streams, control samples and final tailings;
- · rotary Vezin type samplers for secondary sampling of primary sample;
- full final concentrate stream to a rotary Vezin sampler for high accuracy sampling prior to dispatch;
- · full concentrate stream to Launder samplers (LSA's) for Courier analyses; and
- manual sampling on a 2 hourly basis for chromite concentrates.

Multotec samplers have been utilised for all sampling applications apart from final concentrates, where Impala Platinum has specified Dickie & Stockler samplers.

The samplers installed are appropriate and adequate for reliable, repeatable and unbiased sampling of the process streams required, provided that they are correctly maintained.

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### 5.2.2 Process tonnage determination

Process tonnage is determined as the feed to the DMS plant. A moisture factor for the DMS feed is applied and it is stated that it is checked regularly. The floats reject from the DMS plant is accurately weighed and the actual milling rate is determined by difference. The concentrate production is accurately determined by three methods, namely load cell measurement at loading and two independent weighbridges. The moisture content is determined from the dispatch sample.

Chromite production is based on a monthly survey with an assumed bulk specific gravity of 3.0 being applied. Daily estimates are based on an assumed yield of chromite. Chromite is also measured over the weighbridge upon dispatch. This measurement is the least accurate of all the accounting measurements, but is not considered to be detrimental to the overall technical control of the plant. The alternative accounting instrument would be unreliable in this application and prone to inaccuracies.

Tailings discard tonnage is based on the difference between DMS feed, floats discard, chromite production and concentrate dispatched and is checked against installed flow meters on the tailings lines with sampled densities.

All belt weightometers' are electro-magnetic Ramsey units supplied by Process Automation. Process Automation also supplies the flow systems.

The weighing systems installed are considered to be appropriate, reliable and of sufficient accuracy to maintain accurate estimates of tonnage processed and concentrate produced.

## 5.2.3 Concentrate shipment weights and sampling

Concentrate shipment weights are determined three times during the dispatch process. The load cell tank is filled by a programmable logic controller (PLC) and the weight of the slurry discharged into the road tanker recorded. The tanker is weighed over the KPM weighbridge prior to departure for Impala, with the empty tare weight being determined from the previous return trip. At Impala, the road tanker is weighed upon receipt and this is regarded as the definitive shipping weight of slurry. The sample taken at KPM is the moisture and analytical value to be applied to the batch.

Concentrate sample handling procedures were discussed with the mine staff, but no documentation was made available to confirm this. The final concentrate Vezin sampler produces two samples for both high and low grade concentrates. One sample is sealed and retained by KPM whilst the second is sent to Impala Laboratories. The moisture content is determined and the sample is filtered, dried and split into quarters.

Impala retains two samples and two are retained by KPM. One of the Impala samples is used to determine the analyses to be applied to the dispatch batch. As a check on the analytical results from Impala, every seventh concentrate sample is check assayed at the Lonmin Platinum Laboratory. All the sample returns eventually find their way into the concentrate dispatch system.

The concentrate is not specifically insured during transit but is probably covered under their transit cover.

An independent contractor carries out concentrate transport on KPM's behalf. Turnaround time for the tanker from loading to returning to the KPM plant is between five and six hours, although with special effort, this can be reduced to four hours.

KPM has no involvement in, responsibility for, nor is exposed to any risk relating to the downstream processing of the delivered concentrate.

### 5.2.4 Analytical facilities

KPM does not have an analytical facility but has an agreement with Impala Laboratories to conduct all the sample analyses required to operate the mine and processing plant. A second arrangement is utilised for checking at the Lonmin Platinum Laboratory. These laboratories are regarded as well rur facilities and the results generated are expected to be reliable and accurate and thus appropriate for KPM's requirements.

#### 5.2.5 Overall metal flowsheet

The metallurgical mass balance is presented below in the form of a block diagram summarising the plant performance for a particular one-month accounting period.

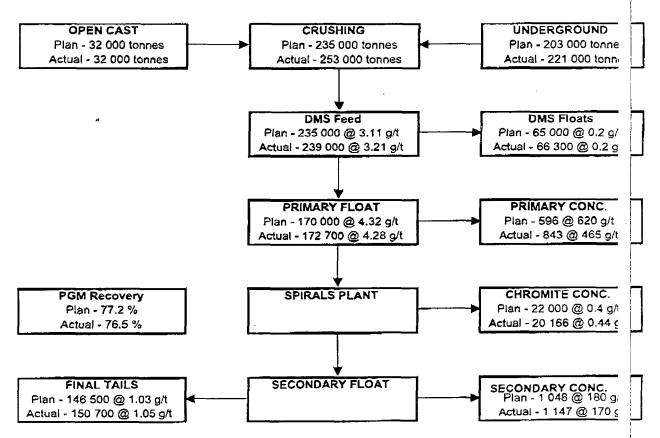


Figure 5.1 - Overall mass balance for concentrator - August 2001

The information presented in the above Figure 5.1 has been obtained from KPM.

#### 5.2.6 Concentrate reconciliation

There are three aspects to the concentrate reconciliation process, namely determination of wet tonnage dispatched, determination of contained slurry moisture and the applicable assay values to be applied to the calculated dry tonnage dispatched. Each dispatch has a distinctive and unique batch number for identification purposes.

The reconciliation of tonnage dispatched compares the three weighing devices, namely the Load Cells at KPM, the KPM weighbridge and the Impala weighbridge. The latter is the accepted weight received at Impala unless there is a motivated reason to dispute the value. The reconciliation conducted by KPM

indicates that there is sufficient monitoring of the data to ensure that the dispatch quantity is reliable and accurate. There is a procedure in place to rectify any queries.

Analysing this data for the three-month period August to October 2001 indicates that the weigh discrepancy between the mass measuring devices has an error of -0.9% for the load cells and -0.1% for the KPM weighbridge. This is regarded as acceptable for measuring any bulk material, particularly concentrates in slurry form.

Moisture is the only determination on the one sample conducted by the one laboratory, although KPM does measure the moisture of the slurry being added to the load cells, and there is a method of checking the weight of the slurry in the load cell for a given volume. Whilst it is assumed that the Impala laboratory is correct and accurate, the possible comparisons indicated above are no documented for reconciliation purposes to confirm the data. An error in this determination is of equal importance to the mine cash flow as errors in the wet tonnage or the assays.

The reconciliation of assays, which is conducted on every 7<sup>th</sup> sample, compares individual elements (namely Pt, Pd and Rh) in the concentrate, as determined by the two laboratories. If there are discrepancies, then both laboratories repeat the samples and the repeats are compared. The accepted splitting limits for each element of concern are:

- Platinum (Pt) 5% relative;
- Palladium (Pd) 5% relative; and
- Rhodium (Rh) 10% relative.

Umpire analyses can be conducted, but to date this has not proved necessary.

Assay comparisons for the low grade concentrate from June 2001 (which was the commissioning time for the plant upgrade – prior to this time, low grade concentrate was not produced) indicate a variation of –0.3% for Pt, +1.4% for Pd and 0% for Rh between the laboratories. During this time the repeat rate has been quite high at 15%. High-grade concentrate comparisons from September 2000 indicate a variation of 0.9% for Pt, 0.9% for Pd and 0.3% for Rh. The repeat rate was also high at 16%. The assay comparison is acceptable and the systems in place are deemed adequate and appropriate for KPM.

Systems could be introduced to obtain a better metal reconciliation, particularly with regard to checking the moisture determination. However, on balance the methods employed and the 'checks and balances' in place are considered adequate and appropriate to KPM.

## 5.3 SECURITY

The entire plant area is enclosed with a single security grade fence to a sufficient height. There is no second security fence around the complex as the threat or risk of theft is not perceived as high for a concentrator in the platinum industry. The nature of platinum minerals, unlike gold minerals, is not to form pockets of extremely high-grade concentrate during the transportation and processing activities. This implies that whilst there are upgraded materials, even with final concentrate, the values associated with small quantities do not justify the extra expense of additional security installations.

Access control to the plant area is via one entrance at the main office, manned by a contract security company. Each individual authorised to work in the area has an allocated magnetic badge reader. Senior staff members of KPM are approved for multiple clockings to cater for groups of visitors, but it is stated that this action does not apply to junior workers, only certain levels of management.

#### 5.4 DESCRIPTION OF PLANT OPERATION

The plant was commissioned in August 1999 and was upgraded in June 2001. This process description and flowsheet is for the upgraded plant.

#### 5.4.1 Process flowsheet

Ore from the open pit and underground is crushed on a campaign basis to fill the storage capacity in the plant to an approximate ratio of 20:80. This blending ratio is maintained in the DMS plant feed to attempt to optimise the performance of the entire plant. There is a higher proportion of waste associated with the underground chromitite seam (estimated by Snowden to be 35%) than in the open pit ore (estimated by Snowden to be 20%) due to the selective mining method employed in the open pit mine. The expected metal recovery from underground is about 82% whilst that from the open pit is about 55%, resulting in an overall recovery of about 77.6%. The chromite removal section is considered to be essential to the product quality in that chromite is removed before it can be misplaced into the final low-grade concentrate and thus incur penalties.

The plant capacity is a nominal 250,000 tonnes per month of combined ROM ore. The plant upgrade consisted of the installation of a surge silo ahead of the secondary crushing plant (effectively decoupling the plant from the mining activities), a natural 'fines' flotation section to the DMS plant, the ball mill regrind plant and associated secondary roughers, cleaner flotation banks and low grade concentrate handling facilities.

The flowsheet, depicted in Figure 5.2, is extremely flexible and there is evidence that the flow is not fully optimised as certain internal streams are being re-directed on a trial basis to improve the overall plant performance.

#### 5.4.2 Primary crushing

As previously described, the ore from the three mines varies in the quantities of entrained waste parting. The fragmentation of the ore in the mining environment results in large quantities of waste material of low value, which can be segregated by screening with little loss of contained metal. To this extent, large particles are separated from the underground ores on surface and chromitite seam is hand picked to return any mineralisation to the process. The underground ore is transported by conveyor from the Central mine and trucked in from both East mine and the open pit. On a campaign basis, the open pit and the underground ores are crushed in a primary crusher (Nordberg 30 x 55 single toggle jaw crusher) for delivery to the overland conveyor at a rate of up to 600 tph.

#### 5.4.3 Secondary crushers

The secondary crusher plant consists of a cone crusher (Nordberg Omnicone 1560 short head) in closed circuit with a banana screen (Nordberg 3.05m x 6.4m with 28mm aperture). The primary crushed ore is delivered to an 800-ton capacity bin as surge capacity. The stored ore is delivered to the screen feed conveyor with the fine fraction being conveyed to the fine ore bins. The coarse ore is returned to a small bin ahead of the secondary crusher. The crushed product joins the screen feed conveyor and is screened. There are two fine ore silos, the larger one (about 8,000 tonne live capacity) is for underground ore and the smaller one (about 2,500 tonne live capacity) is for open pit ore.

The mine personnel state that this section could be regarded as the plant bottleneck at present. There is no process control implemented on this plant, and with the inclusion of modern crusher control techniques, it is anticipated that the plant duty can be improved considerably without the inclusion of new crushing equipment. The current capacity is about 500 tph.

Crusher liner life is acceptable at about 2.5 operating months and Nordberg manages the liner changeouts as part of the service contract.

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## Kroondal Platinum Mines - Concentrator Process Flow

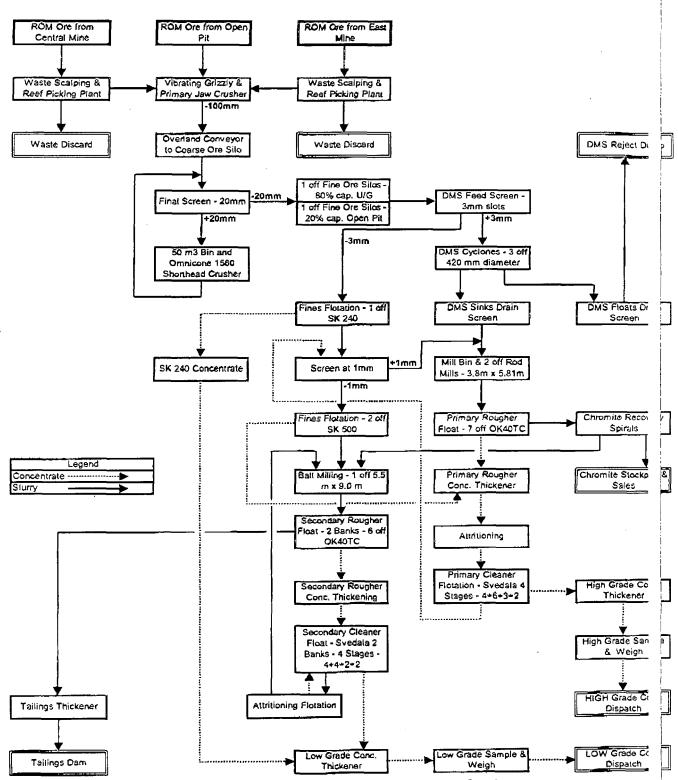


Figure 5.2 - Simplified KPM concentrator process flowsheet

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#### 5.4.4 DMS and natural fines flotation

The DMS plant consists of a feed screen (Nordberg 3.05m x 6.4m banana screen with 3mm slotted apertures), three DMS cyclones (510 mm diameter), floats and sinks drain panels (Nordberg 1.5 m x 2.0 m), drain and rinse screens (Nordberg 2.1 m x 4.88 m) plus the media re-circulation and makeup systems. Plant personnel state that the ferro-silicon loss has been low at between 50 and 90 grams for every tonne. The grade of the DMS float fraction is about 0.2 g/t, although it was acknowledged that the sampling and assaying of this material is extremely difficult.

The natural fines fraction measuring less than 3 mm is screened out of the DMS cyclones and reports to the first of the flash flotation cells (one off Outokumpu SK240 cell). The concentrate produced is pumped directly to the low-grade concentrate thickener for dispatch. The cell tailings are screened at about 0.8 mm, with the coarse fraction reporting with the sinks for rod milling whilst the fines are refloated in two stages of flash flotation (two off Outokumpu SK500 cells). The tailings from these cells report to the ball milling circuit whilst the concentrate is delivered to the primary rougher concentrate thickener.

This circuit has enabled the rod mill duty to remain virtually identical to the original plant despite the tonnage throughput increase following the upgrade.

## 5.4.5 Rod milling

There are two rod mills (Nordberg 3.8m diameter x 5.81 m long with 1,350 kW drives) operating in open circuit. Power draw is about 900 kW with a feed rate of 80 to 85 tph resulting in a specific power input of about 11 kWhr/tonne. The rod mills are stopped regularly for inspection, culling of rods and charging new media. The product is coarse at about 40% passing 75 micron. Mill liner changes are part of the Nordberg service contract with Magotteaux/Fondtogam Foundries supplying the liners. The first change out is expected in the near future after more than 2 years in operation – this is a creditable performance.

#### 5.4.6 Primary flotation

The primary milled product is pumped via conditioners to the bank of seven Outokumpu OK40 tank cells. Reagents are added to activate the flotation of the sulphides and depress the unwanted minerals. The rougher flotation concentrate is pumped to a thickener ahead of the attrition cells and the four banks of the cleaner flotation plant. The final cleaner concentrate is the high-grade concentrate, which is pumped into a thickener for storage prior to dispatch. The rougher tailings are pumped to the chromite gravity recovery spiral plant. Cleaner tailings can be returned into a number of locations in the plant and currently it reports to the 0.8 mm screen at the DMS plant. One batch of high-grade concentrate is dispatched per day to the smelter.

### 5.4.7 Chromite removal plant

The rougher tailings are cycloned to obtain the correct density for the rougher spirals. The concentrate is further upgraded whilst the tailings are scavenged for additional chromite. Multotec triple start spirals are used throughout the plant with 132 starts for the roughers and 84 starts for the cleaners. The quality of the chromite produced is acceptable to the ferro-chrome industry with about 40%  $Cr_2O_3$  and less than 0.5 g/t (4E's). The total production of 20,000 tons per month is sold.

#### 5.4.8 Ball milling

The tailings from the chromite plant are reground in the secondary grinding circuit (Nordberg 5.5 m diameter x 9.0 m long with 4,600 kW drive) operating in open circuit. The mill draws 3,700 kW and produces a product of about 65% minus 75 micron.

### 5.4.9 Secondary flotation

The secondary milled product flows to two banks of OK40 tank cells for secondary concentrate recovery. The rougher concentrate flows to a thickener ahead of four stages of cleaning. Cleaner tailings go to a flotritioner (a combination of flotation cell and attritioner) and return to the ball mill circuit. Flotritioner concentrate goes to the first cleaner stage whilst tails are returned to the ball mill. The concentrate is thickened and joined by the SK240 cell concentrate to form the low-grade concentrate for dispatch. Two to three batches of low-grade concentrate are dispatched per day to the smelter. The secondary rougher tailings are pumped to the tailings thickener and discarded to the tailings dam.

#### 5.4.10 Process control

The plant has a SCADA system to monitor all equipment and implement sequence starts and stops as well as emergency actions. A number of the streams are monitored for process variations and control actions are taken to maintain set points. There is a Courier 3L system in place to monitor a number of streams which feedback into the control system for the necessary actions to be taken.

### 5.4.11 Plant operations, maintenance & condition monitoring

Minopex, a subsidiary of DRA, operates the processing plant on a daily basis and is responsible for operations and maintenance of the plant. The plant engineer is responsible for normal maintenance with maintenance and service contracts issued by KPM to the Original Equipment Manufacturer (OEM), namely:

- Nordberg for crushers, screens and mills;
- Svedala for froth pumps and flotation cells;
- · Outokumpu for tank cells and Courier system; and
- Envirotech for slurry pumps.

In addition, condition monitoring of all equipment has been introduced utilising Fuchs Lubricants. This has resulted in no bearing failures since plant commissioning. This service covers oil analysis, vibration monitoring and infrared photography.

#### 5.4.12 Plant staffing

There are three KPM metallurgical employees with dual responsibility for KPM and Marikana. Minopex supplies the operations and maintenance staff for the plant.

#### 5.5 HISTORICAL AND EXPECTED PERFORMANCE

## 5.5.1 Expected performance

The plant can process a nominal 256,000 tpm of ROM ore (up from 170,000 tpm) with about 170,000 tpm reporting to the mill and concentrate recovery plants. The plant receives ROM ore from underground and the open pit at an average grade of 2.90 g/t 4E. This is upgraded through the DMS plant to 4.28 g/t 4E with a floats reject at 0.2 g/t 4E. The primary flotation concentrate (high-grade) contains >490 g/t 4E with a target at 620 g/t 4E, whilst the secondary flotation concentrate (low-grade) contains >171 g/t 4E with a target at 180 g/t 4E. The plant tailings are anticipated to be less than 0.94 g/t 4E.

The overall recovery to concentrate is to be better than 77.6%. The plant (as at October 2001) is approaching these required levels of performance and the site personnel expect to exceed these performance levels as the upgraded sections of plant have only been operational for a few months and have not been fully optimised.

### 5.5.2 Historical & projected plant performance

The historical processing plant performance has been supplied by KPM and is summarised in Table 5.1. In addition, the forecast for the operation is included for comparison.

The tonnes to be processed are in excess of historical achievements as the process has not yet been optimised following the plant upgrade commissioned in June 2001. The required processing rate is expected to be achievable and maintainable for the forecast period. The grade expected is in line with historical achievements and the forecast PGM recovery is in line with recent achievements, although it is expected that this recovery may be exceeded with improved process control and optimisation. The concentrate tonnage and grade for the different products is developed from current performance data and it is likely that the grade will be more difficult to achieve whilst the tonnage will be exceeded.

			KPM PI	Table 5.1 ant historical p	performance				
	DMS Feed	DMS Head	DMS Float	Processing	DMS Sink	Chromite	Conce	ntrate	PGM
	Tonnes	Grade (g/t)	Tonnes	Tonnes	Rec. (%)	Tonnes	Tonnes	Grade	Recov
Jan-00	98136	2.97	29078	69058	70.4%	8089	298	575	57.
Feb-00	160740	2.97	45055	115685	72.0	13451	598	454	57.(
Mar-00	138490	3.07	39026	99464	71.8	13805	426	584	58.:
Apr-00	158360	3.02	43264	115096	72.7	13989	409	721	61.1
May-00	150804	3.09	44412	106392	70.6	<b>546</b> 3	450	698	67.4
Jun-00	167362	3.20	53824	113538	67.8	11178	552	705	72.c
Jul-00	162932	3.09	51633	111299	68.3	14886	493	747	73.1
Aug-00	171153	3.00	55060	116093	67.8	13442	543	684	72.1
Sept-00	162291	3.01	56104	106187	65.4	14495	589	603	72.1
Oct-00	153029	2.90	53239	99790	65.2	12427	483	694	75.4
Nov-00	168063	3.18	\$3667	114396	68.1	16051	<b>635</b>	597	71.:
D∞-00	161357	3.23	43203	118154	73.2	18179	674	549	70.5
Jan-01	177107	3.06	51366	125741	71.0	27452	674	586	73.0
Feb-01	168568	3.14	56031	112537	<b>66</b> .8	21734	706	552	73.1
Mar-01	167679	3.27	50628	117051	69.8	21785	694	571	72.1
Apr-01	168005	3,34	48183	119822	71.3	20985	688	576	70.6
May-01	177287	2.96	56687	120600	68.0	20259	718	518	70.8
Jun-01	193091	3.05	52794	140297	72.7	20960	1254	356	75.8
Jul-01	221495	3.15	61200	160295	72.4	18592	1739	302	75.1
Aug-01	239123	3.16	66305	172818	72.3	20116	1950	301	76. <u>:</u>
Sept-01	234207	3.05	63440	170767	72.9	23374	1832	307	78.:
Forecast	256000	3.10	76800	179200	70.0	20000	1673	368	77.6
					High-Gra	de Conc	669	620	52.3
					Low-Gra	de Conc.	1004	200	25.31

The split of PGM metals in the ore and concentrates is approximately 60% platinum, 28.5% palladium, 10.5% rhodium and 1% gold. This ratio of metals is also reflected in the final concentrate.

	Table 5.2 Forecast Concentrate Grad	e Data
	Concentra	te Contents
	Low Grade	High Grade
Сц (%)	0.5%	1.0%
Ni (%)	0.6%	2.0%
Pt (g/t)	108	372
Pd (g/t)	51	177
Rh (g/t)	19	65
Au (g/t)	2	6
4E (g/t)	180	620

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#### 5.6 CONCENTRATE OFF-TAKE AGREEMENT

On the 30th April 1998, an off-take agreement was entered into between Aquarius, KPM and Impala Refining Services Limited ("IRS") (previously known as Platinum Sales Limited), a wholly owned subsidiary of Impala ("the Off-take Agreement"). Under the terms of the Off-take Agreement, KPM agreed to sell and supply to IRS and IRS agreed to purchase for the life of mine, Kroondal Project concentrate. The key trading terms contained within the Off-take Agreement are strictly confidential and only a limited summary is outlined below:

- The concentrate is sold to Impala and KPM has no responsibility for the concentrate or contained metal after it has been received at the smelter.
- Payment is based upon agreed percentages of contained metals within the concentrate based on prevailing LME metal prices. A facility exists whereby a percentage of contained metal delivered can be paid in advance. Any prepayment is subject to commercial interest charges.
- In addition, the Off-take Agreement includes the following clauses:
- Encouraging future co-operation between the parties that gives IRS the right of first refusal to negotiate on an exclusive basis to purchase the concentrate from any deposit that Aquarius or KPM have the rights to.
- IRS also has a pre-emptive right to make an offer to purchase the Kroondal Mine if any transaction has the effect of separating the Kroondal Mine from KPM.

For the purpose of the life-of-mine cash flow model, KPM has supplied Snowden with the general terms of the Off-take Agreement regarding payments and penalties.

Table 5.3 summarises the high-grade concentrate production for the period July to September 2001.

High grade co		ble 5.3 uction – July to	September 2001	
	July	August	September	Total
Concentrate (t)	1,739	1,950	1,832	5,521
Concentrate grade (4E g/t)	310	301	307	303
Platinum (oz)	10,184	11,320	10,993	32,497
Palladium (02)	4,808	5,451	5,127	15,386
Rhodium (oz)	1,759	1,953	1,872	5,584
Gold (oz)	108	121	97	326
Total 4E	16,859	18,845	18,089	53,793
Cr <sub>2</sub> O <sub>3</sub> content (%)	2.57	2.93	2.73	2.76

#### 5.7 PROJECTED COST STRUCTURE

The metallurgical budget for the current year is R28.59 per ton of DMS feed (excluding power and water), which we believe, by industry standards, is reasonable and attainable considering this rate is inclusive of the Minopex management costs, overheads and profit margin.

#### 5.8 REAGENTS AND SPARES STOCK

There are significant stocks of operational spares for the plant as well as for about 2 months consumption of reagents. There are sufficient conveyor belts and emergency spares to ensure that the production will be maintained after a significant breakdown. These spares have been charged to the mine upon receipt at the plant and may thus have inflated the operating costs to date. Some of the items will have been supplied as capital spares during construction.

This situation considerably reduces the risk of running out of stores at some future time and it is recommended that this aspect be encouraged.

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#### 5.9 COMMENTS

The process equipment at KPM is all state of the art equipment, supplied by leaders in the field. The equipment appears to be well maintained and in good operating condition. The structures and civils all appear to have been competently designed and installed. They appear to be well maintained and in good operating condition. With the commissioning of the plant upgrade over the last few months, spillage management requires some attention.

The concentrator at KPM is well managed and is operated with technical competence. The record keeping is on par with the best in the industry.

## 6.0 MINE INFRASTRUCTURE

Mr P Van der Walt, Principal Mechanical Engineer of Turnberry Projects Johannesburg was commissioned by Snowden to carry out the due diligence appraisal of the KPM operation infrastructure, underground mechanical engineering and plant engineering.

#### 6.1 TAILINGS DAM

A 42 ha tailings dam (No.1) was developed for the initial KPM project. The design was based on an external earth berm with internal paddocks and drains. Wall construction is by front end loader. There are three penstocks within the dam to remove water to the return water system. This method of tailings dam construction is practiced extensively in the mining industry and is considered adequate and stable, provided that the rate of rise is not exceeded and there is sufficient freeboard to ensure that the dam does not overtop. The No.1 tailings dam has a freeboard in excess of 3 m, which is adequate, but the rate of rise has increased to 4m per annum (ideal is less than 2.5 m/annum) with the increase in throughput.

A second tailings dam (No.2) with a total projected area of 75 ha is being developed in two phases. The current phase of approximately 45 ha was commissioned in November 2001. This will reduce the rate of rise. The second phase is expected to be completed by May 2003, as per KPM's Capex schedule.

Each tailings dam has a complete slurry ring feed around the wall with a central portion for access to the penstocks. This piping network distributes tailings as required to any point on the dam. Deposition takes place by means of a spray bar spigoting system. There are two return water facilities, one per tailings dam, collecting water released from the penstocks for return to the processing plant.

The tailings dams are managed by a contractor (Brollo), who has 37 years of experience, and are over-inspected on a regular basis by a competent tailings dam consultant who is a professional engineer.

#### 6.2 INFRASTRUCTURE

### 6.2.1 Introduction

This section includes discussion on the infrastructural aspects of the KPM operation, including power supply and distribution, water sourcing and reticulation, workshop facilities, planned maintenance programmes and the appropriateness of capital expenditure programmes.

#### 6.2.2 Power distribution

Electrical power is purchased from Eskom (the national power utility) and is supplied via two 88 kV lines terminating in two 20 MVA Eskom transformers. The power is stepped down to 11kV. The mine

reticulates power at 11 kV from the main substation to the secondary substations in the concentrator plant, the substations at the Central and East declines and to the underground substations.

At the secondary substations, power is stepped down to 550 Volts (and 220V for auxiliary power).

The design of transformer bays, substations and cable racks is generally good and in line or better than industry standards. Equipment is new and of modern design with no oil contact breakers (OCB's) being used.

The plant substations have fire detection and CO2 fire suppression systems installed. The major transformers are protected with Bucholz relays, bunding and explosion walls.

The mine reports that there have been minimal problems associated with the power supply and distribution systems. The electrical facilities are maintained by a contractor (Minopex) and appear to be well maintained. Independent consultants carry out regular over-inspections.

Power factor correction units (20 MVA) have been recently installed and commissioned. The second Eskom 20 MVA transformer which was recently installed has not yet been powered up.

There is a small emergency generator (250 kVA) on the property that would supply emergency power to the thickeners, SCADA/PLC and to some of the lighting circuits.

The mine has a contract in place with Eskom for the supply of power. This agreement was initially for a single 20 MVA supply and is currently being amended to cater for a parallel 20 MVA supply. Power charges are based on a standard Eskom "Nightsave (non rural)" tariff structure with a monthly rental to cover the capital expenditure incurred by Eskom. The term of the agreement appears to be for an initial 13-year period.

Average monthly consumption and charges for the period 1 June to 31 August 2001 were:

Maximum Demand:

16.2 MVA

Demand Charge:

R40,230,00/MVA

Energy:

9,325,824 kWh

Energy charge:

R0.0726/kWh

Total average monthly account: R1,362,777.00

#### 6.2.3 Water supply

The KPM operation derives its fresh water from the Rand Water Board (RWB) via a dedicated 2 km pipeline.

The mine currently averages approximately 97,400 kilolitres per month from RWB at a tariff of R2.12 per kilolitre. Water is used for mining, ore processing, dust suppression, office and changehouse facilities, and equipment and vehicle washing. The water supply is reticulated within the mine boundaries.

The fire ring main supply is connected directly to the RWB main and is thus independent of any power failure on site.

The mine staff report that there are more than adequate water supplies and historically there have been minimal problems associated with water supply and distribution systems. We foresee no problems in the water supply to the operation.